file

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006655
Date: 26-Oct-1990 08:58am ED

T

From: HENRY SINGER @MLO
SINGER.HENRY AT A1 at

MEMIT1 at MLO

Dept: EUROPEAN SUPPLIER DEVE

LO

Tel No: 223-5758

TO: ANN FULLERTON @MLO

Subject: LAW AND WASTE MANAGEMENT

KBO WASTE PROGRAM

I N T E R O F F I C E M E M O R A N D U M

Date: 23-May-1990 04:49am ED
T

From: Peter Schmitt
SCHMITT.PETER AT A1 @K
BOMFG @KBO

Dept: LAW
Tel No: 864-4480

TO: BEAT STIEFEL @GEC

CC: SYLVIA REUL @RTO

Subject: I: Law Work and Waste Disposal at the Kaufbeuren Facility

---

Beat,

I am addressing the "Waste Issue" in the broader perspective of looking at

what we are doing here in Kaufbeuren as a manufacturing, engineering and office facility and
how and what "generates" waste with the potential of polluting air, contaminating water, straining the environment and
how do we dispose of waste material.

If you need more details in some respects, please give me a call.

Best Regards.
Peter

1. AIR POLLUTION

* Our manufacturing facility operates three types of cleaning equipment - two for cleaning parts (degreaser and shear stres
s

  units) and one for cleaning cleanroom clothing.
  All units using CFC-13 for cleaning purposes.

  CFCs evaporate at already low temperature degrees and the emission into the air finally leads to the destruction of the 'Ozone Layer'.
  You know of our CFC-reduction project which through "closed systems" and "solvent recovery units" reduced the usage and emission of CFC quite impressively and which project will ultimately lead to a different, i.e. "aqueous cleaning method
"

  thereby completely substituting CFC within KBO manufacturing by end of FY 91.

* Further causes for air pollution are our
  - central gas heating system and
  - the oil heater as a reserve unit.

  - the emergency power unit and the sprinkler pump engine are using diesel oil.

2. WATER CONTAMINATION

* Production

  - added to the degreaser for precleaning purposes are two water bathes containing water agents
  - cleanroom air condition system needs as cooling water de-ionized water

* General Facility Installations

  - the cooling towers require de-ionized water
  - the compressor (Facility maintenance) produces water contaminated by oil, but is equiped with an oil separator
  - the sanitary installations including canteen kitchen (with grease extractor) produce a lot of used water

All these used and polluted waters flow into the public sewage system.

3. WASTE DISPOSAL

* The most effective waste concept is waste avoidance e.g. using only what can be re-used.
  - China mugs in the canteen instead of plastic cups,
  - multiply usable packaging,
  - etc.

* Recycling
  - papers (excluding confidential material) and cardboard from production are put into press containers and collected regularly by a local scrap paper dealer
  - confidential papers, documentation from the whole facility is collected in special and locked containers placed throughout the facility and disposed of by a specialized, licensed company (see section 6.)
  - computer scrap (parts, subassemblies, finished products) from KBO production but mainly FSR-HDA (Head Disk Assemblies as Field Service Returns) covered under a special contract (see section 6.)
  - foam (especially Polyurethan) for packaging purposes is collected by a local forwarder and disposed by a specialized foam recycling company
  - CFC-Cleaning Bathes become contaminated through the cleaning process after a while and must be replaced. The contaminted CFC is being recycled through a specialized company
  - Fluorescent strip lamps, Glass and Cans are collected in separate containers for recycling by specialized companies

* Other Production, Office and Canteen Waste is being regularly collected by City Garbage Service and disposed into a local City dump.

* Special/Hazardous Waste
  - acid water as residue from a cleaning process of very soiled parts by using water with chemical additives
  - used oil from the maintenance department
  - solid substances, e.g. glues, activators, used or new but due dates expired
  - miscellaneous chemical substances (e.g. acids, solvents) from our laboratories

  All of this Hazardous Waste comes in still relatively small quantities and will be collected from Government licensed forwarding agents for disposal at GSB ("Gesellschaft zur Beseitigung von Sondermuell in Bayern"), a Government controlled company for hazardous waste disposal.

4. ENERGY SAVING

Energy comes from power plants using e.g.coal, oil, gas, water o
r
nuclear, scarce natural resources but when used with polluting and destructive effects to our enviroment.

Saving energy = less consumption of these resources = less pollu
tion.

KBO received Digital Energy Achievement Awards in 1986 and 1988 and continuously pursues energy saving methods and processes.

5. EHS AUDIT

Digital KBO was exposed to an "EHS-Audit" by Arthur D. Little la
st
fall with a positive management report and only some minor findi
ngs
which were subsequently corrected.

6. SOME REMARKS ON OUR SPECIAL TREATMENT OF/AGREEMENTS FOR COMPUTER WASTE/CONFIDENTIAL PAPERS

* Computer Waste
  Digital KBO applies a scrap procedure covering all scrapping activities for Digital material [manufacturing scrap (production material/finished goods)/Field Service Returns/ Non-Inventory/Capital Equipment] including a detailed and documented internal approval procedure.

  After the internal approval process a specialized scrap deale
  r
  is called in to pick up the computer waste for disposal and partial recycling.

  The whole activity from loading the truck, transporting, weig
  hing,
  separation of metals to physical destruction is controlled/ supervised by a Digital employee.
  All scrapping documentation is centrally filed. The contract with this scrap dealer covers a.o. the aspects of Customs req
  uired
  treatment of scrap-material (to allow Digital for Customs fee recovery), confidentiality and US-Export Controls.

* Confidential Papers
  The company we have contracted with operates with a Governmen
  t
  license and is certified by local TUEV.

  The business of "Destruction of Information Media" is quite

nt regulated in GY by laws, ordinances, DIN-norms and a Governme required license.

There are approximately 20 special, locked and numbered containers placed throughout the KBO facility. After collection of these containers and destruction of all contained information media a signed report detailing the containers and persons involved is sent to Digital and centrally filed.

This company was also visited and qualified by the Security Managers of Digital KBO and MUC and we are presently considering to combine both Digital companies' requirements into common agreements.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 004278
Date: 27-Sep-1989 07:11am EDT
From: John Caulfield
CAULFIELD.JOHN AT A1 at RAVEN1

at ATO

Dept: Corp. Strategic Waste
Tel No: 354-2815

TO: See Below

Subject: CORE GROUP MEETING MINUTES - SEPTEMBER 21ST

Attendees:

Jesslyn Sullivan	Dick Skola
Art LeBlanc	John Doyle
Larry Nielsen	Paul Coute
Carmine Riccioli	Rick Gasparoni
Ken McGuire	Joe Collentro

Stephen Greene represented Cary Gherman

Carmine Riccioli accepted the challenge of taking the minutes of the meeting. With this memo, I have added some of my own flavor to it. We really miss Theresa Buckley in this important area.

Introduction of the new members of the Core Group took place.

Joe Collentro	Paul Coute
Jean Scoon	Rick Gasparoni

John Caulfield gave a brief overview of the progress since the last three meetings and proceeded to express the goals of this meeting, which was to assign team captains and individuals to the specific teams. John took the liberty of preparing teams in advance so they could be reviewed and accepted. Handouts were given to attendees explaining the ownership of each module. For those of you who could not attend the meeting, a hard copy will be forthcoming. The following are the team captains.

Tracking System	Jesslyn Sullivan
Materials Components	Joe Collentro
Area Sites & Plants	John Crowley (GIA) Art LeBlanc (GIA) Claudio Ditullio (U.S.) Carmine Riccioli (U.S.) Ray Walker (Europe) Jeff Sutton (Europe) Jesslyn Sullivan (Support for all functions)

Packaging	Larry Nielsen
PDS Sites	John Crowley (GIA) Art LeBlanc (GIA) Claudio Ditullio (U.S.) Carmine Riccioli (U.S.) Ray Walker (Europe) Jeff Sutton (Europe) Jesslyn Sullivan (Support for all functions)
Support Functions	Theresa Buckley - Corp. Personnel Cary Gherman - Corporate EH&S Rick Gasparoni - Corporate Finance Peter Hunt - Corporate Security John Doyle - Corporate Distribution Foster Knight - Legal Jeff Gibson - Public Relations

Ken McGuire and Karen Salveta will be assigned to the New Products team also.

Jean Scoon was added to the EH&S Five Year Plan and Joe Collentro deleted.

The next step is for each of the team captains to start pulling their teams together and generate a plan specifically on the elelents on waste management that they now own. We will start to review those plans at the Core Group meetings.

I also agreed to eliminate standardization on selected components and materials for the time being.

We also need to identify a candidate to represent Europe at these meetings. I am not sure who accepted the challenge to find that person. I believe it was Jesslyn Sullivan or Joe Collentro, but we need someone.

Distribution:

TO: KARPINSKI.STANLEY AT A1 at RAVEN1 at ATO
TO: JOE COLLENTRO @CFO
TO: BILL BOUDETTE @KNX
TO: DAN GARAND @DAS
TO: KEN MCGUIRE @MKO

CC: MIKE FLAHERTY @MLO
CC: BOB HULT @OGO
CC: RON PAYNE @MLO
CC: TOM EATON @AKO
CC: JOHN SIMS @MLO

Use the RDL option to see remainder of distribution lists.

WASTE MANAGEMENT PROGRAM

Briefing for Executive Committee

By:

John Sims

BACKGROUND

KEY FINDINGS FROM INTERNAL AUDIT REPORT ISSUED OCTOBER 31, 1988

- A lack of world-wide policies and procedures to safeguard material disposal. NO ONE group accountable.

- Basic operating control weaknesses at the Property Disposal Centers (PDCs).

- A lack of policies governing hazardous waste disposal and compliance with current and changing legislation.

RESOLUTION

RESOURCES NOW IN PLACE TO HANDLE THE TASKS

SHORT TERM

Clean up what we have !

Secure disposal of the tonnage we have on hand by June 30th.

LONG TERM

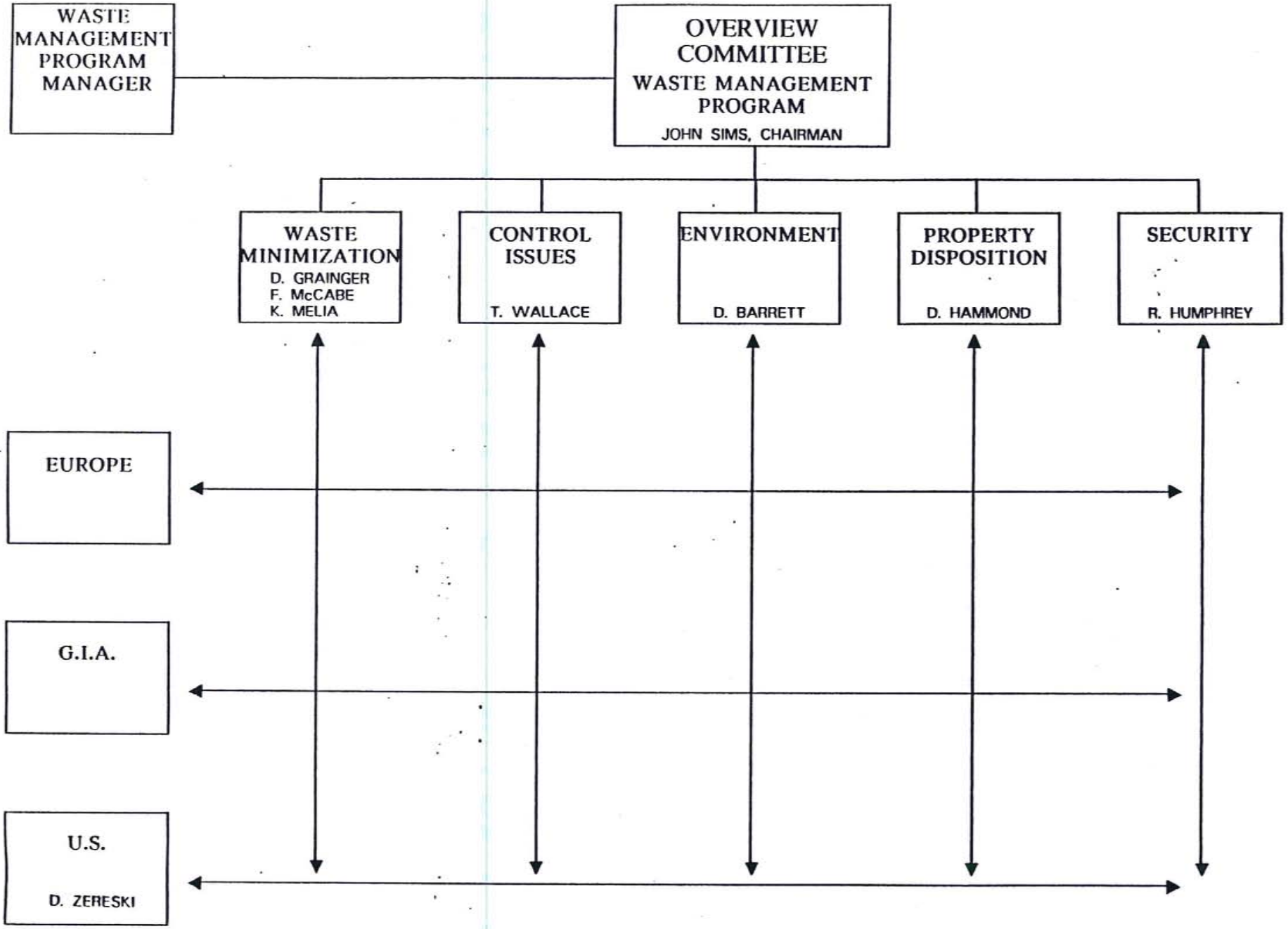
Ongoing Corporate Program for Waste Management.

6 million pounds annually, valued at $500M

- waste disposal
- source reduction
- compliance
- worldwide education
- etc.

OVERVIEW COMMITTEE FOR WASTE MANAGEMENT PROGRAM

Chairman	John Sims
Program Manager	— —
Corporate Field Service	Dave Grainger
Corporate Quality	Frank McCabe
Corporate Materials	Kevin Melia
Corporate Internal Audit	Tony Wallace
Environmental Health & Safety	David Barrett
Corporate Administration	Doug Hammond
Corporate Security	Ray Humphrey
Corporate Law Department	Foster Knight
Corporate Public Relations	Jeff Gibson



171317

SCOPE OF WASTE MANAGEMENT PROGRAM

CREATE NEW POLICIES AND STANDARDS ASSOCIATED WITH:

- WASTE MINIMIZATION

  Design and manufacturer future products to minimize waste, scrap and environmental concerns.

- CONTROL

  Implement control procedures to minimize shrinkage, diversions, theft, etc.

- ENVIRONMENT

  Meet our obligations as a "World Class Company" to minimize or eliminate environmental pollution.

- PROPERTY DISPOSITION

  Manage the disposal of waste/scrap consistent with Digital's objectives.

- SECURITY

  Ensure safe keeping of Digital's assets.

REQUEST YOUR SUPPORT FOR:

BASIC PRINCIPLES OF WASTE MANAGEMENT

- Provide a framework for developing a worldwide strategy.
- Address cross-functional, worldwide issues.
- Consistent with other major Corporations.
- Comply with principles of law, waste management, community and government relations.

COST IMPLICATIONS — U.S.

FY'89	2.0M	6 people
FY'90	4.0M	10 people

Waste Management Program should be self-sustaining due to Salvage Recovery beginning in FY'91.

WASTE MANAGEMENT PROGRAM MEETING
EHS PROGRESS REPORT
1/20/89

- Backlog Disposition
  - Vendor Reviews
  - Environmental Liabilities

- Equipment Shredding/Disassembly Options:
  - Initial Disassembly (Digital Controlled)
  - Separation/Disposition of Hazardous Mat'ls

- Equipment Shredding Option: (not recommended)

  Concerns:
  - Cross-Contamination from Shredder
  - Liability - Residue Disposal
  - Legal Issues (shredding industry)
  - Negative Media Coverage

EHS PROGRESS REPORT (cont)

1/20/89

- Equipment Disassembly Option: (recommended)

  Advantages:

  - Reclamation
  - Minimize Environmental Liability
  - Cradle to Grave tracking minimized (commodities)
  - Concur with consultant recommendations

  Concerns:

  - Policies/Procedures
  - Analysis of Materials
  - Review Reclamation Vendors

- EHS Support for Disassembly Option
  - Employee Training
  - Hazardous Component I.D.
  - On-Site Assistance
  - Vendor Qualifications
  - International Issues

I N T E R O F F I C E M E M O R A N D U M

Date: 22-Dec-1988 03:00pm EST
From: HANK MILLETTE
MILLETTE.HANK
Dept: U.S. FIELD SERVICE
Tel No: DTN 268-3102

TO: ANNE KREIDLER (PAPER MAIL)
TO: JEFF GIBSON (PAPER MAIL)

Subject: WASTE MANAGEMENT PROGRAM

Enclosed is the committee report distributed on 11/18/88. This consolidates the inputs from the first couple of meetings held and will provide you with background information.

Under separate cover you will be receiving a copy of the Internal Audit Management letter dated October 31, 1988 addressing Material Control & Property Disposal. This report precipitated the formation of the "Waste Management Program." This will be forwarded to you by Tony Wallace's office.

I will draft and send to you next week my thoughts on the 5-6 overheads which John needs for the Executive Committee briefing.

Regards and Happy Holidays,

Hank

OVERVIEW COMMITTEE

REPORT ON WASTE MANAGEMENT PROGRAM

"DRAFT"

DATE: 11-18-88

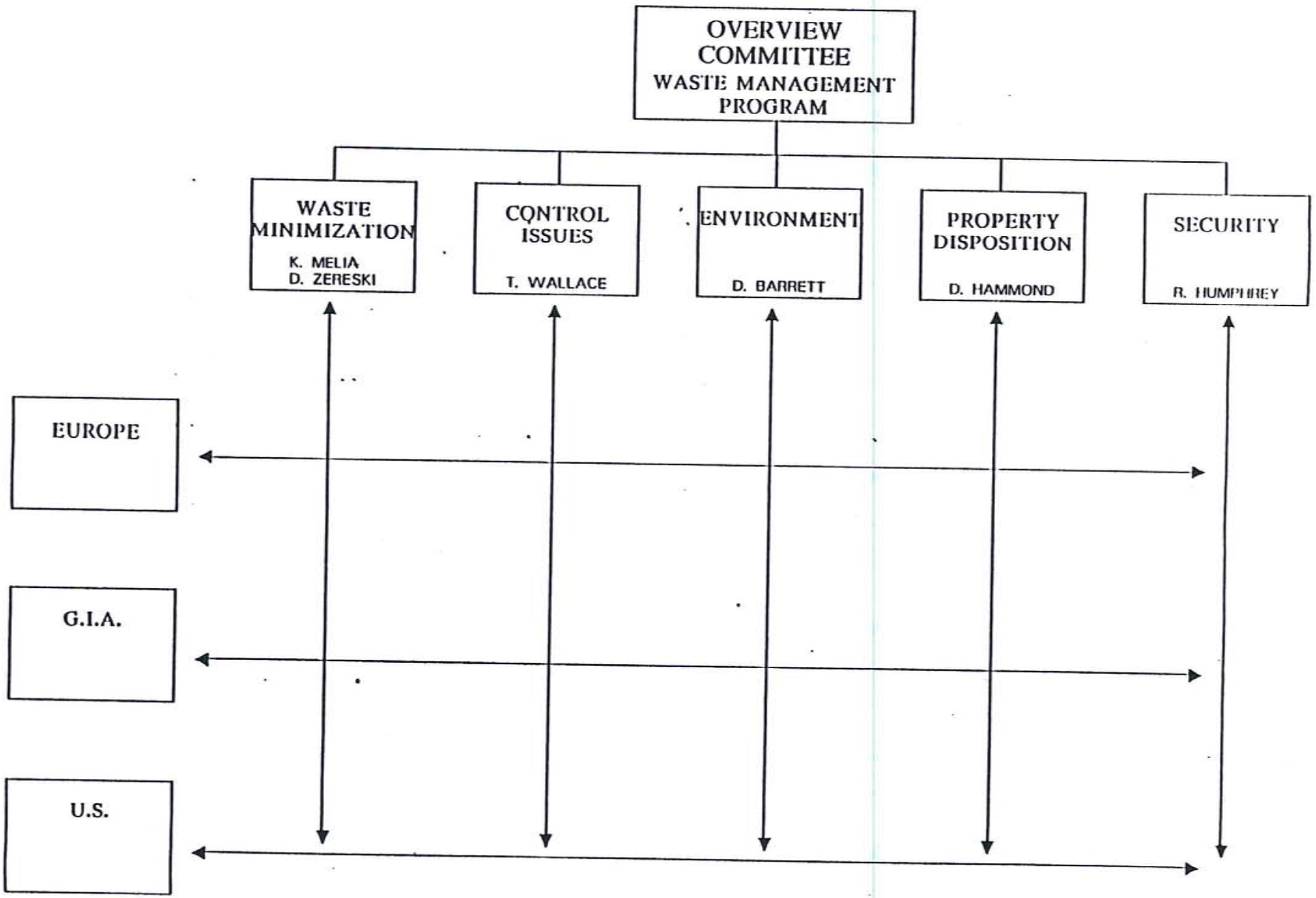
Environmental Health & Safety	David Barrett
Corporate Field Service Logistics	David Dubay
Corporate Field Service Logistics	Bob Good
Corporate Field Service	David Grainger
Corporate Administration	Doug Hammond
Corporate Field Service Finance	Bob Hult
Corporate Security	Ray Humphrey
Corporate Materials	Kevin Melia
Corporate Controller	Bruce Ryan
Corporate Law Department	Foster Knight
Vice President Strategic Resources	John Sims
Corporate Internal Audit Manager	Tony Wallace
U.S. Field Service	Don Zereski
Corporate Materials	Mike Flaherty
Corporate Quality Controls	Frank McCabe

GOALS

SHORT TERM: Clean up what we have!

That Means Secure Disposal of the Tonnage we Have on Hand.

LONG TERM: Corporate Program for Waste Management.



RECOMMENDATIONS FROM INTERNAL AUDIT REPORT

Responsibility		
Overview Committee	o	Role and Responsibility of PDC's.
Corporate Admin. Doug Hammond	o	Policies and Procedures for PDC Operations.
Overview Committee	o	What Material to Destroy Internally Prior to Shipment to Scrap Vendors.
Overview Committee	o	Key Part Tracking Throughout Product Life.
Corporate Security Ray Humphrey	o	Define Physical Security Requirements.
Corporate Health David Barrett	o	Policies and Procedures for Hazardous Waste Material Disposal.
Corporate Audit Tony Wallace	o	Define Control and Reporting Processes.

EXISTING BASIC CONTROL WEAKNESSES

FUNCTIONS - IMMEDIATE ACTION

Responsibility	Activity
Doug Hammond	"Input/Output Controls at PDC".
Kevin Melia Bob Good	"In-transit Control Processes". Field Service/Manufacturing/Corporate Distribution
Bob Good	Enhance FS Stock Control System.
Kevin Melia	Control Process for Prototypes. Seed Units. and Loaned Equipment Within Engineering and Marketing.
Tony Wallace	Improve Variance and Escalation Processes for Missing Material.
	Front End Retail Model for Commodity Products.
	Back End Process for all Products.

INTERNAL AUDIT FINDINGS MAPPED TO ACTION GROUP

"IMMEDIATE ACTION"

	WASTE MINIMIZATION	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
PROPERTY DISPOSAL PROCESS					
o OPERATIONS	X	X	X	X	X
o POLICIES AND PROCEDURES	X	X	X	X	X
FIELD SERVICE					
o SHIPMENTS TO THE PDC		X	X	X	X
o IN-TRANSIT CONTROLS		X			X
o INTERNAL RECYCLING	X	X		X	X
o STOCK CONTROL SYSTEM		X			X
FIELD SALES					
o UPGRADES	X	X		X	X
MANUFACTURING/ENGINEERING					
o PROTOTYPES AND SEED UNITS.	X	X			X
o EXPENSED MATERIAL - 235 TRANSACTIONS	X	X			X
o REMANUFACTURE OPERATIONS		X		X	X
PHYSICAL SECURITY					
o POLICIES AND PRACTICES		X	X	X	X
INVENTORY CONTROL					
o BASIC PROCESSES	X	X	X	X	X

HOW DO WE COMMUNICATE WITH THE EXECUTIVE COMMITTEE & EXECUTIVE COMMITTEE SPONSORSHIP.

- COMMUNICATION - INFORMATION

  AN UNDERSTANDING OF THE SIZE AND SCOPE OF THE PROBLEM.

- IDENTIFY AND EMPOWER ONE GROUP ACCOUNTABLE AND RESPONSIBLE FOR WASTE MANAGEMENT PROGRAM.

- APPROVE "BASIC PRINCIPLES OF WASTE MANAGEMENT" (DAVE BARRETT WILL PRESENT)

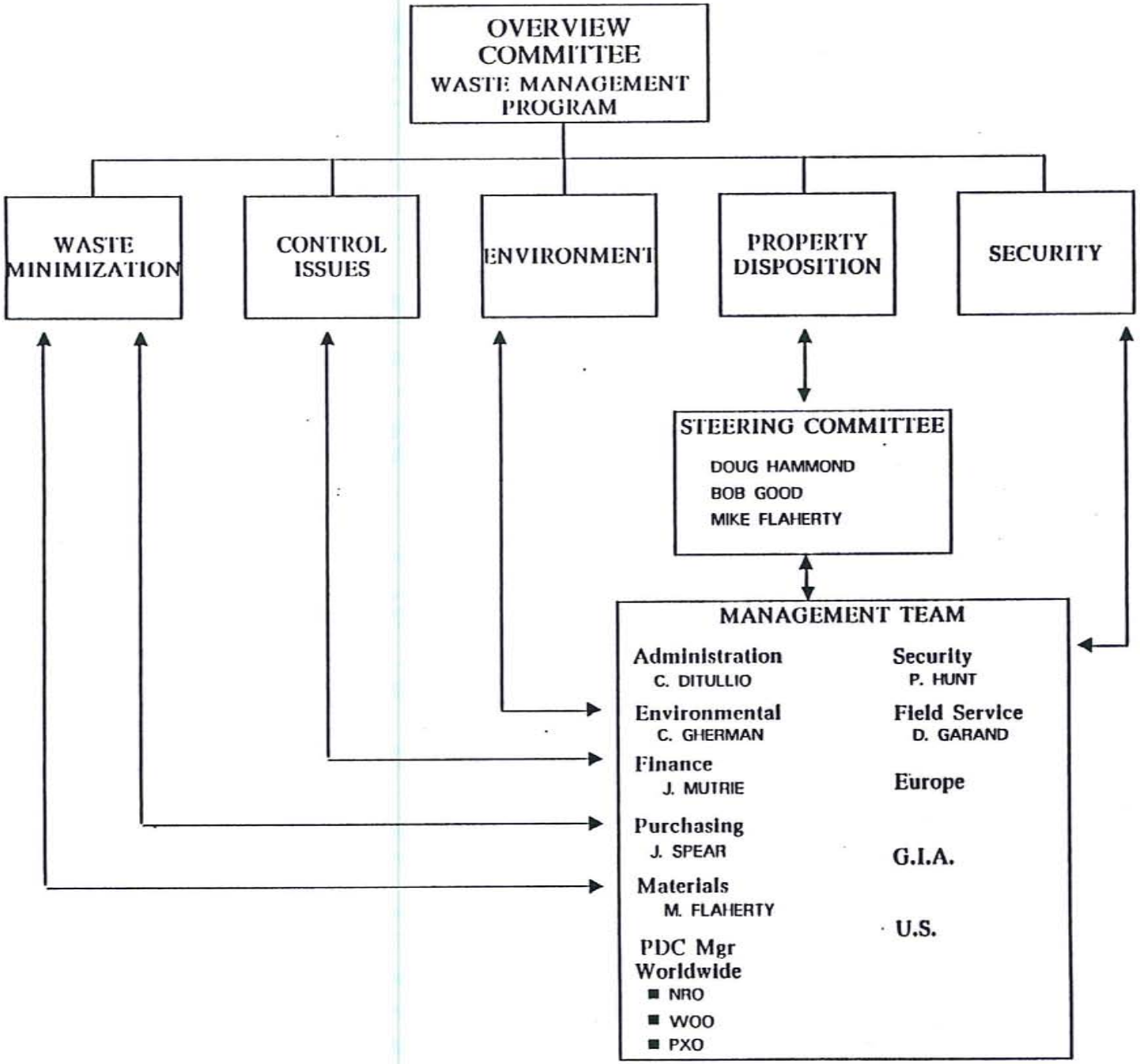
- SUPPORT "RANDOM SEARCH POLICY" (FINAL REVIEW STAGE - CORPORATE DICK WALSH)

- SUPPORT 3 AREA PLANS

-

-

-



90 DAY DELIVERABLES

PROPERTY DISPOSITION	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. DEVELOP A VENDOR SELECTION TEMPLATE TO BE USED WORLDWIDE. (2, DEC 1988)		X	X	X	X
2. DEVELOP A GENERIC BOA FOR PROPERTY DISPOSITION VENDORS. (15, DEC 1988)		X	X	X	X
3. TEST SHORT TERM VENDOR ALTERNATIVES TO CLEAN UP THE BACKLOGS. o SABIN - TEST COMPLETED - SHREDDING/INCINERATION (VENDOR) o SIPI - TEST PENDING - SHREDDING/INCINERATION (VENDOR) o WESTINGHOUSE - AWAITING PROPOSAL SHREDDING/COMPACTING (INHOUSE)		X	X	X	X
4. IDENTIFY/CLASSIFY ALL POTENTIALLY HAZARDOUS COMPONENTS HANDLED BY PDC'S/VENDORS (BREAKDOWN OF PRODUCTS BEING ANALYZED)		X	X	X	
5. DEVELOP A WORLD WIDE PROPERTY DISPOSITIONS STRATEGY THAT WILL MINIMIZE ALL ENVIRONMENTAL, LEGAL AND FINANCIAL RISKS.	X	X	X	X	X

LONG TERM DELIVERABLES

PROPERTY DISPOSITION	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. ESTABLISH WORLDWIDE CORPORATE POLICIES AND PROCEDURES THAT WILL GOVERN PROPERTY DISPOSAL.	X	X	X	X	X
2. ESTABLISH PROGRAMS WITHIN AN INTEGRATED BUSINESS PLAN.	X	X	X	X	X
o INFORMATION SYSTEMS AND TECHNOLOGY PROGRAM EDUCATION/AWARENESS PROGRAM. MEASUREMENT PROGRAM.					
3. ESTABLISH PROCEDURES FOR HANDLING HAZARDOUS MATERIALS.			X	X	X
4. TIE INTO PRODUCT BUSINESS PLANS.	X		X	X	X
o ENVIRONMENTAL IMPACT					
o PRODUCT TECHNOLOGY					

MISSION STATEMENT
(Property Disposal)

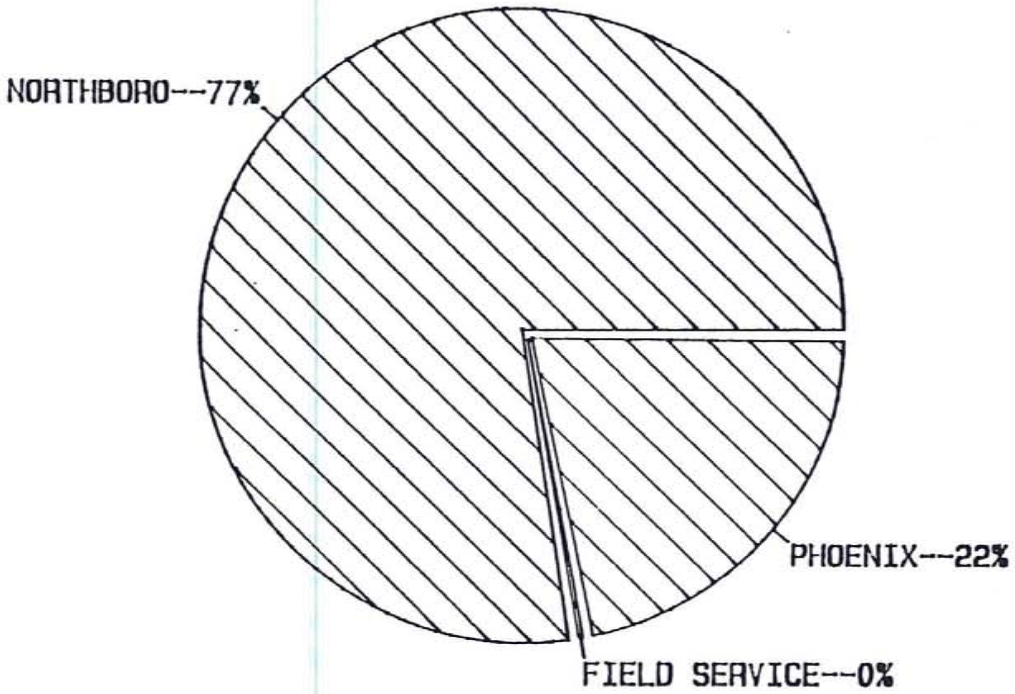
Provide leadership in the establishment of an integrated worldwide program that will ensure materials identified as obsolete are processed in such a manner that will not adversely affect the Corporation.

Minimize environmental risk and liabilities through the development of a worldwide strategy that properly classifies, controls and disposes of material that potentially exposes the corporation to risk.

CHALLENGES

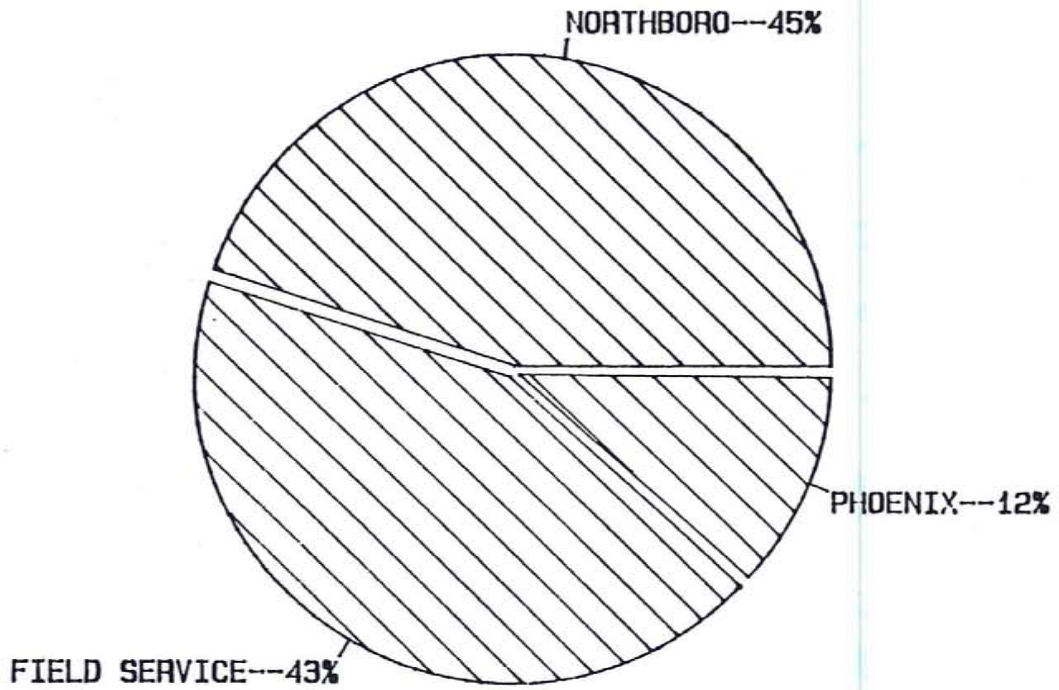
- A COMPREHENSIVE WORLDWIDE STRATEGY
- ELIMINATE ADVERSE FINANCIAL IMPACT
- IMPROVE OPERATIONAL PROCESSES & CONTROLS
- ESTABLISH CONFIDENCE

RECEIPTS YTD
1,678,566 (LBS)
CAPITAL



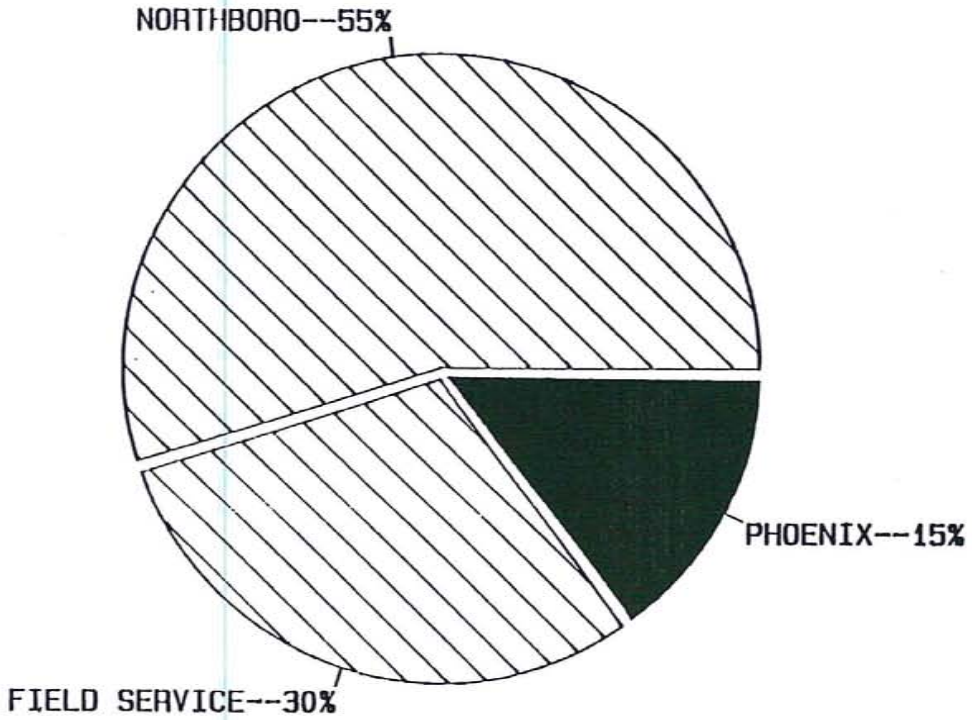
C. DITULLIO
11/09/88

RECEIPTS YTD
3,601,140 (LBS)
INVENTORY



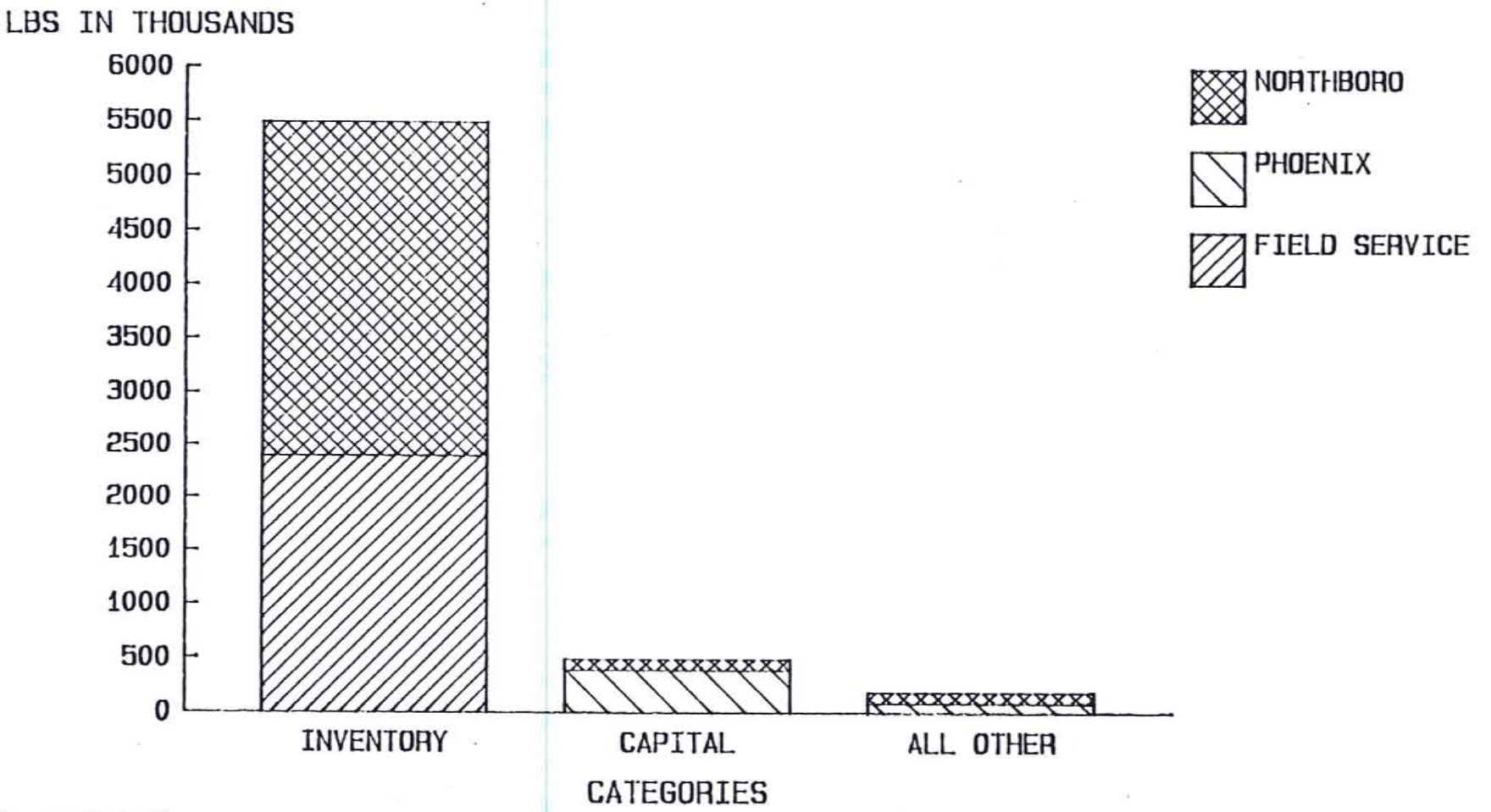
C. DITULLIO
11/09/88

RECEIPTS YTD
5,279,706 (LBS)
INVENTORY/CAPITAL



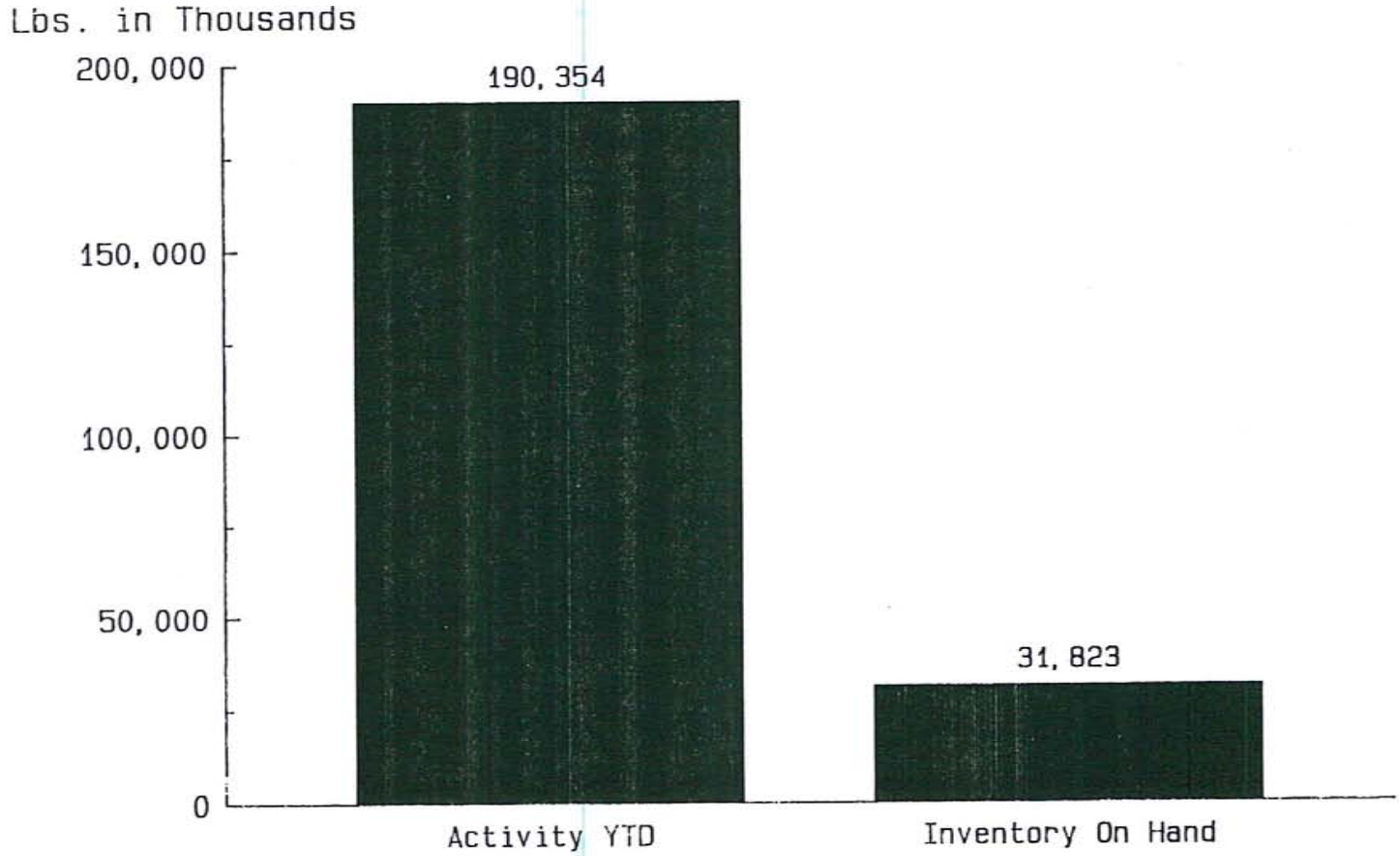
C. DITULLIO
11/09/88

INVENTORY ON HAND
ALL PDC'S



C. DITULLIO
11/09/88

SOFTWARE ACTIVITY



Phoenix & Field Service Software "0" Activity

STRATEGY STATEMENT

To work within the framework of the Inventory Waste Management Program to develop and manage a worldwide Property Disposition Program which ensures that Digital materials intended for disposal are secure from opportunists and competitors.

Minimize environmental liabilities through the development of a worldwide strategy that properly classifies, controls and disposes of materials that potentially exposes the corporation to risk.

SHORT TERM STRATEGY

The goal of the Property Disposition Team will be to manage the processing of both accumulated inventories as well as all incoming materials. At the same time we will work to integrate our efforts into Waste Minimization Programs being developed.

In order to accomplish these goals we will embark on several programs to test both internal and external alternatives. Each of these alternatives will ensure that all proprietary material is either shredded/compacted at a Digital site or witnessed by authorized personnel at a vendors operation. Alternatives that will be weighed and analyzed will include:

- In house disassembly
- Total Destruction at a vendors site
- Facility Management (In house shredding/Compacting by a vendor)
- Vendor processing/Incineration (witnessed)
- Digital shredding/compacting operation
- Westinghouse (testing and a long term disposal proposal)

The Management Team that will work the issues of Property Disposition will include representatives from each of the five major elements of the Inventory Waste Management Program. Each of these individuals will ensure that all short and long term strategies are integrated into each of the five control points.

OBJECTIVES

Once the deliverables are agreed upon and expanded I will use them as the basis for developing program objectives with time tables and action items to be worked.

This will also be the basis for a business plan for the balance of the year that will include objectives as well as a resource plan.

RESOURCE PLAN

CURRENT ACTIVITIES

(These are all covered in the 90 day deliverables, they are just updates of the activities) We may want to consider changing some deliverables to match up against audit points and also talk a little more about tying back into Waste Minimization Programs. Raising visibility to what's coming in.

- VENDOR SELECTION PROCESS

Final Draft 11/22/88

- Vendor Qualification Document
- Environmental Check list
- Security Analysis
- Transportation/Hazards Materials

- GENERIC BOA'S FOR PROPERTY DISPOSITION

- Recycling - final draft
- Metal Reclamation - final draft
- Disposal- 1st draft

- SHORT TERM VENDING ALTERNATIVES

- Sabin
- Sippi
- Boledin ---- Includes inhouse shredding proposals
- Westinghouse as well as vendor processing.
- WTE

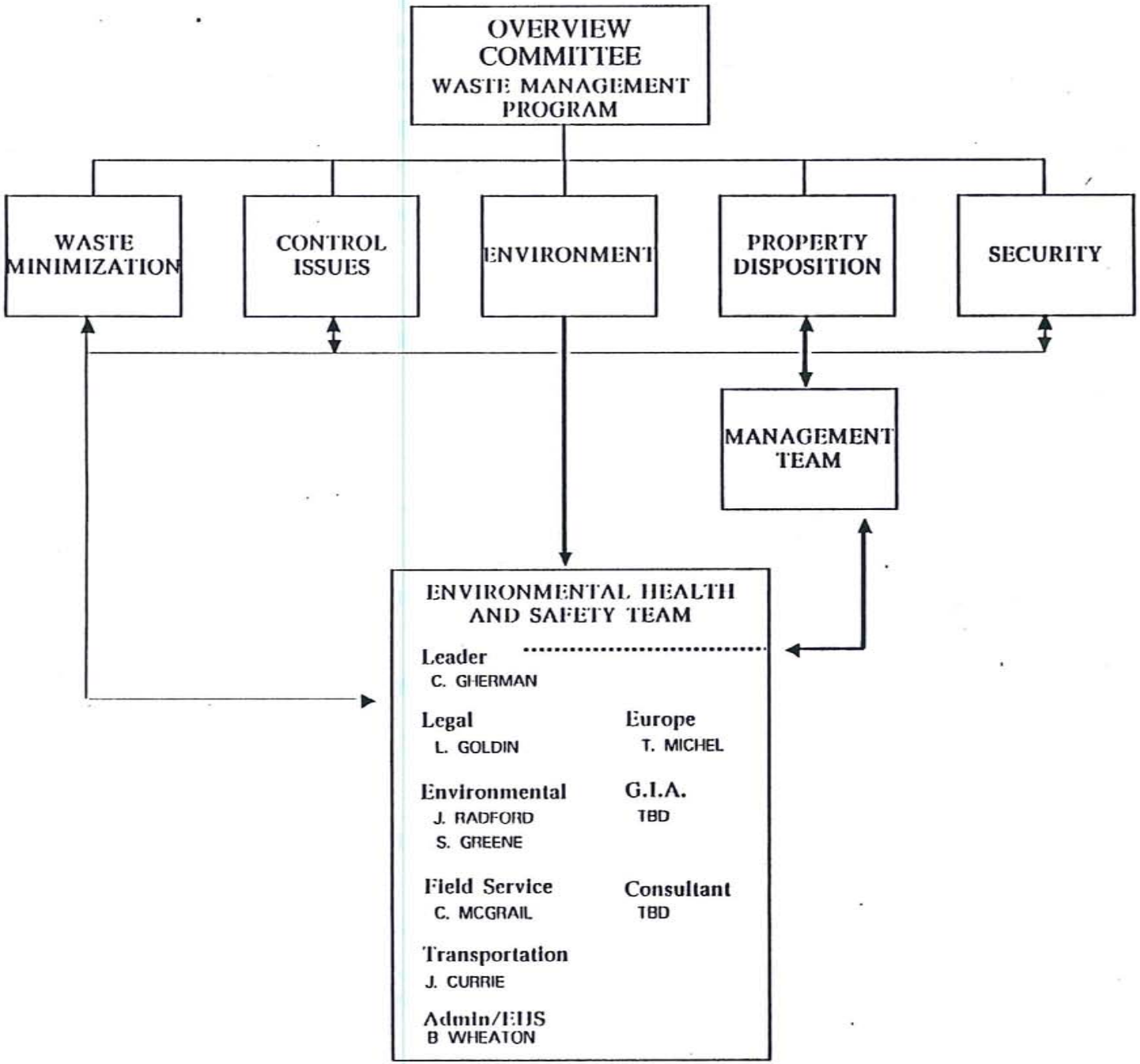
(Working parallel efforts to those of F/S. Tim McCarthy/Alyn Flynn)

- PRODUCT CLASSIFICATION

Working in concert with EH&S personnel to develop a process of classifying inventory elements in PDC's as hazardous and no- hazardous. (Initial listing has been developed).

PROJECTED ADDITIONAL COST

	AMOUNT
Vendor Charges for Disposition (Based on .06 per lb using the current run rates for volumes).	$1100K
Additional Labor	
- Contracts	$95K
- Support (environmental. controls, purchasing)	$100K
Freight Charges	$300K
Westinghouse Test	$54K
Possible Acquisition of Shredding Equipment	$70K
Security Costs (Athol) 24 hours/day 7 days per week	$52K



90 DAY DELIVERABLES

EH&S	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. DEVELOP A VENDOR SELECTION TEMPLATE TO BE USED WORLDWIDE. (2, DEC 1988)		X	X	X	X
2. DEVELOP A GENERIC BOA FOR PROPERTY DISPOSITION VENDORS. (15, DEC 1988)		X	X	X	X
3. TEST SHORT TERM VENDOR ALTERNATIVES TO CLEAN UP THE BACKLOGS.		X	X	X	X
4. IDENTIFY/CLASSIFY ALL POTENTIALLY HAZARDOUS COMPONENTS HANDLED BY PDC'S/VENDORS (BREAKDOWN OF PRODUCTS BEING ANALYZED)		X	X	X	
5. DEVELOP A WORLD WIDE PROPERTY DISPOSITIONS STRATEGY THAT WILL MINIMIZE ALL ENVIRONMENTAL, LEGAL AND FINANCIAL RISKS.	X	X	X	X	X
6. DEVELOP TRAINING PACKAGE FOR ALL AFFECTED EMPLOYEES AND CONTRACTORS.			X	X	X
7. MANAGE ACCUMULATED SCRAP BY CATEGORY: SEGREGATE: DESTROY: TRANSPORT; DISPOSE: RECLAIM: TREAT.		X	X	X	X
8. BEGIN DEVELOPING AUDIT PROGRAM.		X	X	X	X

LONG TERM DELIVERABLES

EH&S	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. ESTABLISH WORLDWIDE CORPORATE POLICIES AND PROCEDURES THAT WILL GOVERN PROPERTY DISPOSAL.	X	X	X	X	X
2. ESTABLISH PROGRAMS WITHIN AN INTEGRATED BUSINESS PLAN.	X	X	X	X	X
o INFORMATION SYSTEMS AND TECHNOLOGY PROGRAM EDUCATION/AWARENESS PROGRAM, MEASUREMENT PROGRAM.					
3. ESTABLISH PROCEDURES FOR HANDLING HAZARDOUS MATERIALS.			X	X	X
4. TIE INTO PRODUCT BUSINESS PLANS.	X		X	X	X
o ENVIRONMENTAL IMPACT					
o PRODUCT TECHNOLOGY					
5. IMPLEMENT THE COMPREHENSIVE EHS WORLDWIDE AUDIT PROGRAM.			X	X	

LONG TERM DELIVERABLES

EH&S	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
6. DEVELOP AND IMPLEMENT WASTE MINIMIZATION PROGRAMS.	X	X	X	X	X
7. MANAGE INTERNATIONAL ISSUES (E.G., WASTE EXPORTS, LEGAL, REQUIREMENTS, COUNTRY SCRAP MANAGEMENT PRACTICES, VENDOR PROGRAM.	X	X	X	X	X
8. ESTABLISH LIAISONS WITH OTHER COMPANIES/TRADE ASSOCIATIONS IN SOLVING WASTE ISSUES.			X	X	X
9. HIRE ADEQUATE EHS RESOURCES TO SUPPORT ON-GOING PROGRAMS.			X	X	X
10. PROVIDE ONGOING REVIEW OF WASTE TREATMENT TECHNOLOGY.			X	X	
11. ESTABLISH VENDOR MANAGEMENT PROGRAM.		X	X	X	X
12. WORK WITH GOVERNMENTS IN DEVELOPING REASONABLE LAWS AND IN ENSURING AVAILABILITY OF ADEQUATE WASTE MANAGEMENT FACILITIES.	X		X	X	

ENVIRONMENTAL, HEALTH AND SAFETY

RESOURCE TIME ESTIMATES

	FY89	FY90
Jack Currie	15%	05%
Cary Gherman	75%	35%
GIA Team Member	20%	40%
Stephen Greene	25%	20%
Tom Michel	20%	40%
Julia Radford	40%	20%
Bob Wheaton	10%	05%
	===	===
	2.3 FTE	1.85 FTE

ENVIRONMENTAL, HEALTH AND SAFETY

SCRAP PROJECT BUDGET

	FY89	FY90
Technical Assistance (including lab fees)	$200K	$70K
Training		$200K
Travel	$20K	$70K
Headcount (3): Technician Waste Minimization Expert * Trainer		$200K
	$220K	$540K

* The training position costs can be transferred to critical needs areas as necessary.

SCRAP MANAGEMENT PROJECT

CONSULTANT SCOPE OF WORK

PHASE I

The first task will be to determine the characteristics of the scrap material and the chemical constituents that make up the material. This will be accomplished by sorting, and statistically sampling accumulated scrap currently stored in Athol, Northboro, Phoenix, Whitinsville, and Woburn.

PHASE II

Based upon data collected in Phase I, an environmental fate analysis will be conducted. The objective of this work will be to recommend the most environmentally sound manner for final disposition of the material.

ENVIRONMENTAL, HEALTH AND SAFETY

Legal Risks

- Hazardous Waste Laws
  - "Scrap Metal" vs. Hazardous Waste.
  - Fines up to $50K per Violation.

- Superfund
  - Liability for on or off-site clean-up costs.

- Hazard Communication Laws
  - MSDSs, Warning Labels.

- Common Law
  - Toxic Tort Lawsuits.

BASIC PRINCIPLES

OF

WASTE MANAGEMENT

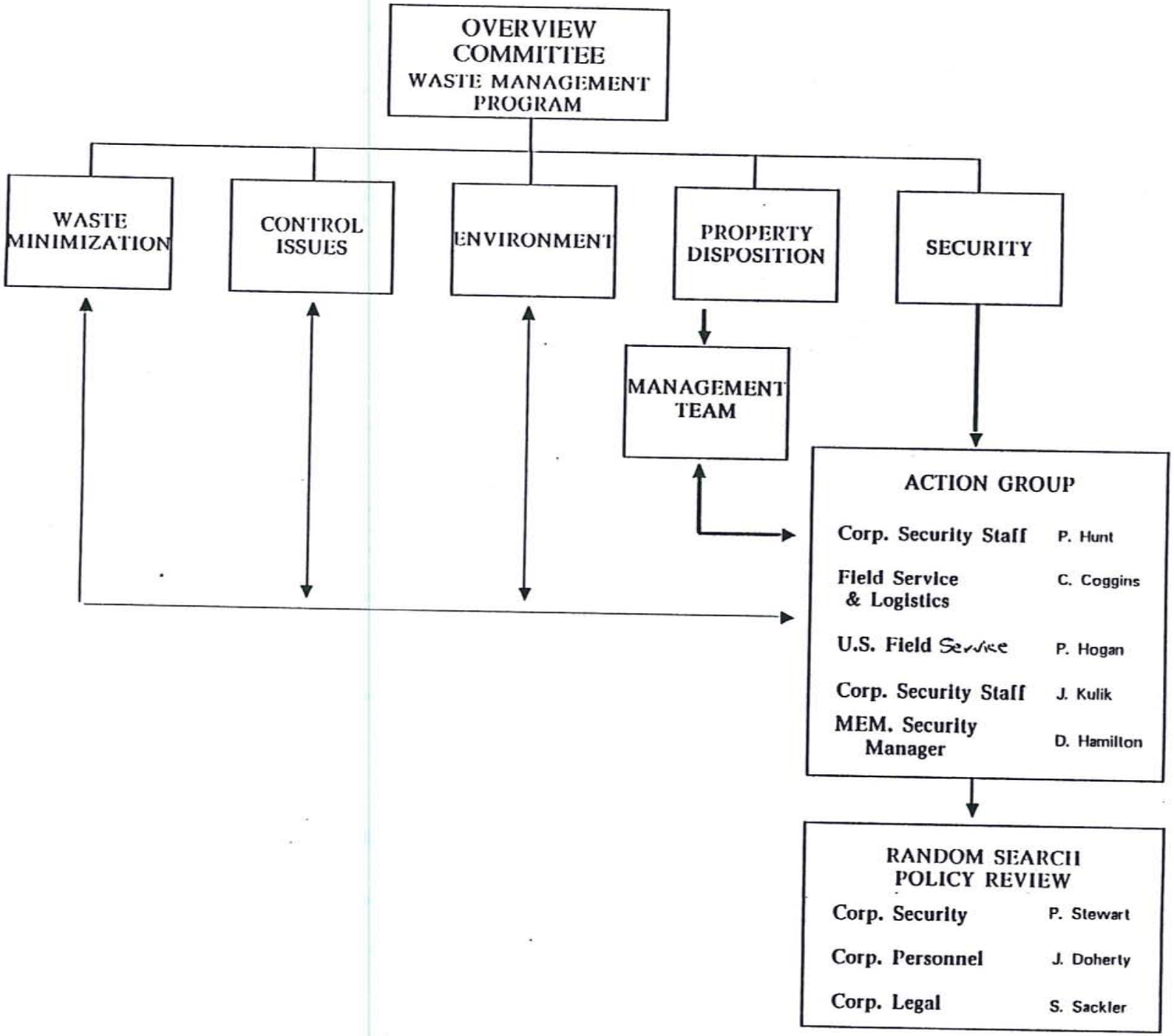
- o Provides a Framework for Developing a Worldwide Strategy (Including Policies and Procedures).
- o Addresses Legal, Environmental, Public Relations, Public Policy and Communications Issues.
- o Consistent with Other Major Corporations and With Public Interest Groups.
- o Principles
  - Comply with Law.
  - Reduce Wastes.
  - Manage Wastes to Control Significant Risks.
  - Ensure Balanced Decision Making.
  - Streghthen Public Policy Commitment.

RELATED ENVIRONMENTAL, HEALTH & SAFETY

(EHS) INITIATIVES

The Following Ongoing Digital Initiatives Support the Scrap Management Issue:

- Development of Critical Compliance Procedures (e.g., Hazardous Waste).
- Establishing a Waste Minimization Program (Including Cost Accounting System).
- Implementation of Comprehensive Audit Program.
- Development of EHS Information System (e.g., Hazardous Material Tracking).
- Assessing Resource Requirements in Europe and GIA.
- Strengthening Public Policy Efforts (e.g., Toxics Reduction).
- Understanding Laws Outside the U.S.



90 DAY DELIVERABLES

	WASTE MINIMIZATION		*CONTROL ISSUES*		*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
SECURITY							
1. DEVELOP A VENDOR SELECTION TO BE USED WORLDWIDE (2 DEC 1988).	X		X		X	X	
2. DEVELOP A GENERIC BOA FOR PROPERTY DISPOSITION VENDORS (15 DEC 1988).	X		X		X	X	
3. TEST SHORT TERM VENDOR ALTERNATIVES TO CLEAN UP THE BACKLOGS.	X		X		X	X	
4. DEVELOP A WORLDWIDE PROPERTY DISPOSITION STRATEGY THAT WILL MINIMIZE ALL ENVIRON-MENTAL LEGAL AND FINANCIAL RISKS.	X		X		X	X	X
5. DEVELOP TRAINING PACKAGE FOR ALL AFFECTED EMPLOYEES AND CONTRACTORS.			X		X	X	
6. SECURE ACCUMULATED HI-VALUE, HI-RISK SCRAP: STORAGE, TRANSPORT. DISPOSITION.	X		X		X		
7. BEGIN DEVELOPING AUDIT PROGRAM.	X	X	X	X			

SECURITY

LONG TERM DELIVERABLES

	WASTE MINIMIZATION	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. ESTABLISH WORLDWIDE CORPORATE POLICIES AND PROCEDURES THAT WILL GOVERN PROPERTY DISPOSAL.	X	X	X	X	X
2. ESTABLISH PROGRAMS WITHIN AN INTEGRATED BUSINESS PLAN.	X	X	X	X	X
o INFORMATION SYSTEMS AND TECHNOLOGY PROGRAM. EDUCATION/AWARENESS PROGRAM. MEASUREMENT PROGRAM.					
3. ESTABLISH PROCEDURES FOR HANDLING HI-VALUE AND HAZARDOUS MATERIALS.		X	X	X	
4. TIE INTO PRODUCT BUSINESS PLANS.					
o ENVIRONMENTAL IMPACT o PRODUCT TECHNOLOGY o SERIALIZATION/BARCODING	X	X	X	X	
5. IMPLEMENT WORLDWIDE SECURITY AUDIT PROGRAM - STORAGE. TRANSPORT, VENDORS			X	X	
6. HIRE ADEQUATE SECURITY RESOURCES TO SUPPORT ONGOING PROGRAMS.					

SECURITY

RESOURCE ESTIMATES

TIME	SHORT TERM	LONG TERM
P.HUNT, J.KULIK	25%	10%
P.HOGAN	20%	10%
C.COGGINS. D.HAMILTON, B. BREEN	10%	5%
S.SACKLER. G.BROTHERS	5%	5%
R.ROWAN, J.DOHERTY	5%	5%

PHYSICAL	SHORT TERM	LONG TERM
SECURE STORAGE		
SPACE ALLOCATION	N/A	-
SECURE STORAGE SPACE FIT-UP/CONST. (CAGES. CLOSETS.ETC.)	N/A	100K
REUSABLE SECURE CONTAINERS FOR TRANSIT (DEC ->DEC->, DEC->VENDOR)	N/A	100K
LOCKS. SEALS. ALARMS ELECTRONICS	2.5K	90K

HEADCOUNT	SHORT TERM	LONG TERM
SECURITY AUDIT/COMPLIANCE	N/A*	(1)
		SALARY 45K
		TRAVEL 25K

MATERIAL CONTROL AND PROPERTY DISPOSAL

(SECURITY)

SHORT TERM

Provide security for the hi-value and hi-risk accumulated scrap that exists today at points of storage, during transit and at destruction sites - through storage site security surveys, transit security recommendations and conducting security compliance testing at short term scrap vendors.

LONG TERM

Provide policy, procedure and recommended measures for the security of (identified) hi-value and hi-risk obsolete materials - throughout the scrap process, generation through destruction.

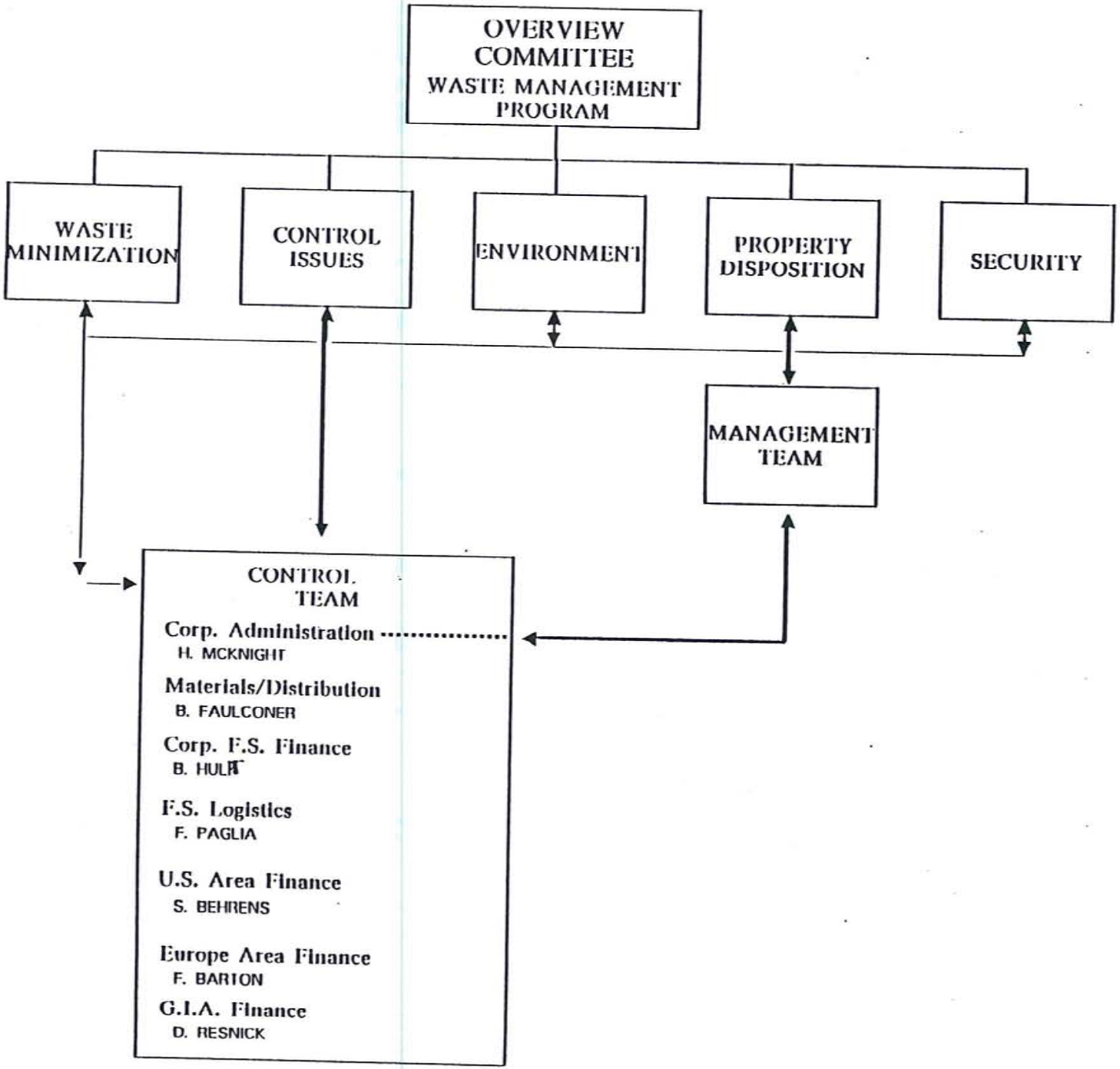
Security-Related Issues

- Any part of the disposal process that is handled external to DEC - by vendors - must be strictly controlled through established BOAs allowing unannounced compliance testing (TRANSIT VENDOR, SCRAP VENDORS, etc.).

- The allowance of scrap to be removed from the company via the Property Removal Pass (PRP) should be discontinued.

- The company search policy must be adopted to complement physical security measures especially in manufacturing and major warehouse operations.

- EAS and related security systems/devices will be constantly followed for suitable utilization/application.



90 DAY DELIVERABLES

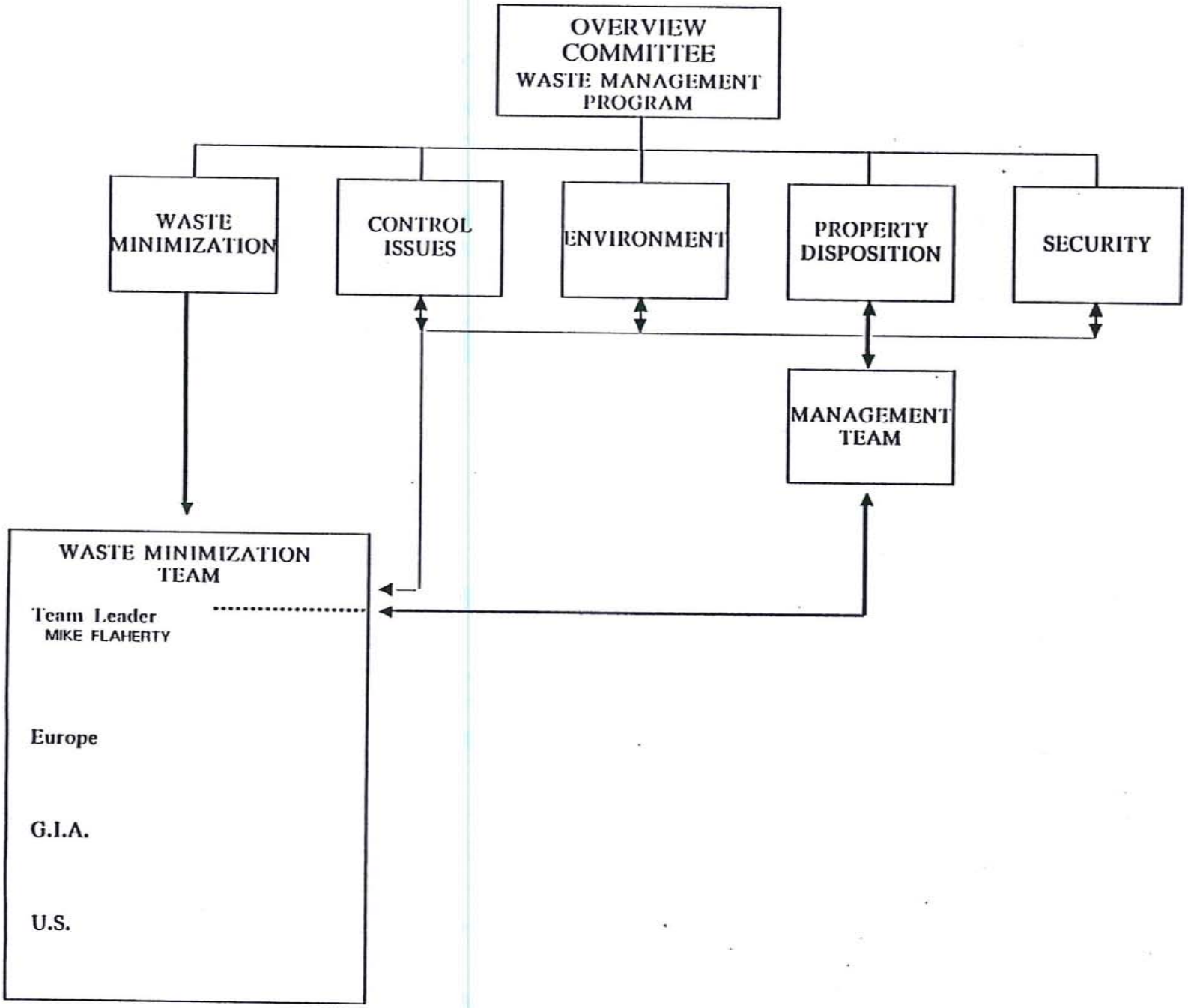
CONTROL	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. PROPOSE TO EXECUTIVE COMMITTEE OPTIONS AND RECOMMENDATIONS FOR ASSIGNING MANAGEMENT RESPONSIBILITIES AND PROCESSES RE: SCRAP DISPOSITION.					
2. CURRENT "COMMITTEE" MAKES DECISIONS AS NEEDED TO DEAL WITH CURRENT SITUATIONS: o INTERNATIONAL DISPOSITION o DESTRUCTION OF MATERIAL o VENDOR QUALIFICATION FOR CURRENT DISPOSAL.					
3. RECONCILIATION OF SHIPMENTS TO PDC'S INCLUDING ACKNOWLEDGMENT PROCESS.					
4. TRACKING/CONTROL SYSTEM WITHIN PDC'S (PHOENIX MODEL)					
5. REVIEW PROCESS ENSURING DISPOSAL PER CONTRACT/POLICY BY VENDORS.					
6. RECONCILIATION OF SHIPMENTS TO/ FROM PDC AND FIELD STOCKING LOCATIONS MANUAL - SCS UPGRADE.					

90 DAY DELIVERABLES

CONTROL	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
7. RECONCILIATION OF IN-TRANSIT BETWEEN CLO'S MANUAL.					
8. IMPLEMENT UPGRADE RETURN POLICY.					
9. CLOSE LOOP CONTROLS ON PROTOTYPES; SEED UNITS AND 235 EXPENSED MATERIALS.					
10. TIGHTEN CONTROLS RE: PROPERTY REMOVAL AND FOLLOW-UP.					
11. SEGREGATE HIGH-VALUE/SENSITIVE MATERIAL IN ALL STOCK ROOMS, RESTRICT ACCESS, TIGHTEN RECORD-KEEPING ON USAGE, SPECIAL PI FOCUS.					
12. ESTABLISH BASIC CONTROLS IN "WAREHOUSES"					
13. ESTABLISH AND IMPLEMENT FINANCIAL ANALYSIS OF CYCLE COUNT AND PI VARIANCES FOCUSED ON HIGH VALUE, CRITICAL PARTS, SEPARATE FROM "COMMODITY" TYPE PARTS.					

LONG TERM DELIVERABLES

CONTROL	*WASTE MINIMIZATION*	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*
1. IMPLEMENT MANAGEMENT PROCESS.					
2. CORPORATE POLICIES AND PROCEDURES DEVELOPED AND IMPLEMENTED FOR:					
o ROLE OF PDC'S					
o MATERIAL DISPOSITION STRATEGY INCLUDING CONSIDERATION OF SETTING UP CAPTIVE DISPOSAL COMPANIES.					
o SCRAP VENDOR MANAGEMENT					
o DEFINE CRITICAL PARTS (COMPETITIVE. ENVIRONMENTAL AN ECONOMIC CRITERIA)					
o CONTROL MONITORING STANDARDS FOR CRITICAL PARTS.					
3. MAINTAIN SHORT TERM POLICIES AND PROCEDURES OR AUTOMATE WHERE COST /BENEFIT INDICATES.					



71517

WASTE MINIMIZATION

WASTE MINIMIZATION | *CONTROL ISSUES* | *ENVIRONMENT* | *PROPERTY DISPOSITION* | *SECURITY*

1. CORPORATE MATERIALS OPERATIONS PROGRAM MANAGER FULL TERM.

2. QUARTERLY AGING REVIEWS.

3. WORLD WIDE DIAL.

4. IPT/TREG MARKETING.

5. TOOLS
   - o CAN BUILD
   - o AUTO AGING

6. DISCONNECTED CAPITAL

LONG TERM DELIVERABLES

WASTE MINIMIZATION

WASTE MINIMIZATION	*CONTROL ISSUES*	*ENVIRONMENT*	*PROPERTY DISPOSITION*	*SECURITY*

1. HAZARDOUS WASTE EDUCATION.

2. DESIGN ENGINEERING FOCUS PHASE 0.

3. TOOLS
   - o PRODUCTIZATION

4. REWARD/RECOGNITION PROGRAMS.

5. INTEGRATED RESULTS WITH P&L/AUDITS/ BUSINESS.

6. PLANS TO GET INCREASED FOCUS.

7. EDUCATE. EDUCATE. EDUCATE.

I N T E R O F F I C E M E M O R A N D U M

E M A S A 2 A L L - I N - 1 S Y S T E M

Date: 10-Jan-1989 09:01am EST
From: HANK MILLETTE
MILLETTE.HANK AT A1 at FSHQA
Dept: U.S. FIELD SERVICE
Tel No: DTN 268-3102

TO: See Below

Subject: WASTE MGMT PROGRAM MEETING - 20 Jan 89

Attached is the agenda for the above meeting.

Please bring an adequate number of handouts for attendees at the meeting.

The meeting will be held in the "Large Conference Room", ML010-2, 8:00AM to 9:30AM.

Press RETURN to continue or EXIT SCREEN to exit

Regards,

HM/bmh

WASTE MANAGEMENT AGENDA

20 January 1989

Review / Short Subjects	John Sims
Progress Reports from:	
-- Waste Minimization	Mike Flaherty
-- Property Disposition	Doug Hammond
-- Environmental, Health & Safety	David Barrett

Press RETURN to continue or EXIT SCREEN to exit

-- Security	Ray Humphrey
-- Control Issues	Tony Wallace
Wrap-Up / Future Meetings	John Sims

Next scheduled meeting is 17 February.

Distribution:

TO: ANNE KREIDLER @CFO
TO: HANK MILLETTE (MILLETTE.HANK AT A1 at FSHQA1 at YW)

Press RETURN to continue or EXIT SCREEN to exit

WASTE MANAGEMENT COMMITTEE
20 JANUARY 1989 (1)

(1) DISCUSSED CANDIDATES AND FOCUS OF POSITION/MEASUREMENT	SIMS
	FULLERTON
	GIBSON
(2) WASTE MINIMIZATION	MILLETTE
CO-COORD KEVIN MELLA + McCABE + GRAINGER	GOOD
COMM COORD MIKE FLAHERTY	HAMMOND
PROGRAM TEAM KEN McGUIRE + BILL BOUDETTE	GRAINGER
	MELLA
BEGIN DEVELOPMENT OF STRATEGIC PLAN –	BOB HULT
LETTER TO DESIGN ENGINEERING	BARRETT
ANALYSIS OF PLASTIC COMPOSITION	GHERMAN
	McCABE
(WM) → BROUGHT BACK TO PHASE 0	KNIGHT
	TONY WALLACE
(3) PROPERTY DISPOSITION	PETER HUNT
3.2 M POUNDS SINCE JULY	CLAUDIO DITULLIO NMO DURHAM
LOOKING AT PROCESSING	
REQUALIFYING OF VENDORS + SEEKING NEW VENDORS	

FACTORS (SECURITY, ENVIRONMENT, TIMELINESS, COST, RECLAMATION)

DISASSEMBLY → DESTRUCTION → EVERY ELEMENT RECYCLED USING OUTSIDE VENDOR
NEED TO PROCESS EXTENSIVE BACKLOG.

GHERMAN → PROBLEM VENDORS (BELGON) (C+C) SUPPORT DISASSEMBLY OPTION

HUNT → SECURITY ISSUE IS CHIPS ON BOARDS.

WALLACE → BRIEFLY DISCUSSED VARIOUS CONTROL ISSUES.

FEBRUARY 17TH → NEXT MEETING.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 004492
Date: 26-Oct-1989 01:58pm EST
From: THERESA A. BUCKLEY
BUCKLEY.THERESA AT A1 at EMASA

2 at MLO

Dept: Human Resources Developmt
Tel No: 223-3192

TO: See Below

Subject: MINUTES OF BOD WASTE MANAGMENT 10/5/89

ATTENDEES

Jesslyn Sullivan, Peter Hunt, Joe Collentro, Cary Gherman, Ray Humphrey, Mike Flaherty, Doug Hammond, John Caulfield, Theresa Buckley

PROGRAM UPDATE

John reviewed progress to date on the Waste Management Program effort; i.e.,

.Windham vendor issue -- contract has been renegotiated. Effective 10/31/89, Windham will no longer be a DEC vendor. John applauded the efforts of all involved in handling these negotiations effectively.

PDC BUSINESS PLAN

John highlighted several pending program efforts:

.Disassembly
.Recycle Outlet
.Resolve EH&S CRT's
.Wrap-up Process with Windham
.Qualify Vendor

Progress report -- 17 vendors have been screened. There is a consideration underway to visit a vendor site to observe/understand their waste processing operations. John believes that Claudio can pick up the slack and make progress in this area. John advised that available employees in transition are being reviewed as potential resources to support this short term effort of keeping the process running.

John displayed a comprehensive chart of a PDC Business Plan on how to do business today re: PDC accounts. John cited his goal of having a respectful business showcase operations P & L

Operations Budgets/Revenues. The milestone chart was reviewed in detail.

Mike raised concern that the PDC plan appeared to be more of a U.S. vs. a Worldwide plan. He emphasized the need to get Athol/Woburn and the West Coast defined as well as defining what needs to be done to get worldwide support.

Doug recommended that John consider doing a review of company costs of DEC employees vs. vendors. John agreed to talk with a 5 person team to determine the support needed. Doug agreed to lend whatever additional support John may require on this effort.

John reviewed the responsibilities of his position for the BOD members. He advised that both the sales and marketing organizations have requested him to consider working with other companies on the waste management.

Mike raised concern regarding John's current workload and citing the importance of John remaining strategic vs. operational.

Discussion evolved to redefining the role of the Waste Management BOD in relation to John's efforts. Results of this discussion are listed in the following Action Steps:

.John to conduct one on ones with each BOD member.

.BOD members to define/clarify their role as it relates to the support of the Waste Management Program.

.Need to determine appropriate meeting schedule; i.e., monthly or quarterly.

Distribution:

TO: JEFF SUTTON @SQF
TO: BOB HULT @OGO
TO: RON PAYNE @MLO
TO: TOM EATON @AKO
TO: JOHN SIMS @CORE

Use the RDL option to see remainder of distribution lists.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 004735
Date: 18-Dec-1989 08:40am EST
From: THERESA A. BUCKLEY
BUCKLEY.THERESA AT A1 at EMASA

2 at MLO

Dept: Human Resources Developmt
Tel No: 223-3192

TO: See Below

Subject: MINUTES FROM 12/1/89

John welcomed the group and introduced Jeff Sutton, European EH&S Manager. The Agenda addressed updates by Steering Committee members.

Dave Barrett, Corporate EH&S Manager presented an Environmental Awareness overview. Dave discussed the Corporate EH&S Waste Minimization strategy emphasizing the support for this worldwide project and detailing some of the programs currently being worked on.

.Adoption of a Worldwide EH&S Policy - Policy has been written and will be presented for approval to the Executive Committee. Ken has agreed to sign a communications letter in support of this overall policy statement.

Dave highlighted the policy statements indicating that the overall goal was in support of waste minimization. Conservation of natural resources was key along with the reduction of hazardous material, recycling, and compliance with the law. He stated a forum to address waste concerns is currently being addressed.

.Management Accountability/Ownership - Dave highlighted the importance of emphasizing this responsibility over the next year and advised that significant work had been accomplished during the development of the EH&S Service Delivery model that addressed this issue. Progress has begun and communications have occurred utilizing the Environmental Health & Safety Board members as a vehicle.

.EH&S and Waste Partnership

Dave stressed the importance of tying together all components; whether it be air, chemical releases, etc., and the necessity to ensure CFC be incorporated into the overall worldwide waste minimization project. Dave advised the group that Cary Gherman had accepted a full time position reporting to him, having responsibility for developing a five year

Waste Minimization strategy for Environmental Health & Safety.

.Greening Technology

Dave advised the group that Europe is in the process of developing a Business Plan that will address the potential of dealing with $1B of business in the environmental applications area. He stressed the importance of understanding the contributions that environmental applications are making to Digital's overall marketing effort.

.Gus Speth, a noted environmentalist, has been invited to be Guest Speaker at Ken Olsen's luncheon on January 3rd. The focus of the talk with be environmental issues and the use of information technology. The talk will be videotaped and made available on request.

.Norway Exhibit - Dave emphasized the importance of the Norway project as an excellent opportunity for Digital from an overall environmental awareness and marketing standpoint. The President of Norway is sponsoring an "Action for a Common Future" conference to address global environmental concerns. This is a ministerial/governmental conference and it is expected that dignitaries will include Gorbachev, Bush, etc.

.Infinite Voyage Series - Dave highlighted recent programs that topic the Crisis in the Atmosphere. These are educational and awareness building program efforts and Dave stressed the importance of ensuring that Digital also "keeps its house in order".

.Digital and the Law - Dave stated that we need to understand "how we are addressing the issues?" He talked about a letter recently received from Ford Motor Co. asking DEC if we were committed to eliminating CFCs from our products and asking if we would ensure that our products would be without CFCs. This will be an important focused area for EH&S and the corporation as we move into the 90's.

.Employee Involvement - Dave believes that having employee involvement in the overall waste management effort may be key to driving the success of the program. He recommended that we come up with a "slogan" and a program of recognition to encourage participation. Dave advised that meetings have been held with Ann Fullerton in an effort to develop an appropriate "message" for Digital.

.Earth Day - Dave talked briefly about another major event to occur in April of 1990 and advise that programs to address this event are currently in the design stages.

Security Program Update - Peter Hunt

Peter discussed the strategic outlook from a Security standpoint. He has been actively involved in the Waste Management Core Group and has been working closely with group members on various projects. A 5 Year PDC Space Strategy is being worked with core group members.

.Internal/External Control

Peter is working with a task group to establish strategic direction regarding internal/external controls. He stressed the importance of an EH&S mandate for the handling of materials in the future.

.GIA Waste Management

Peter has been working as a member of a team to address GIA waste from a strategic level, addressing both policy and planning issues.

Operational:

.Vendor Review - the focus has been primarily on boards.

.Bale Operations - Two new vendors approved Winthrop & Millis.

.One Ten Plastics -- new outlet for plastics.

.Storage Systems - A review is currently underway to determine whether more focus is needed in this particular area.

.Investigations: Focus is in the "furniture" area to determine if we are handling disposition correctly. Ron Payne currently has four members of Purchasing participating on the Core group to work issues of this nature.

Recycle/Reclamation - Joe Collentro

Joe advised group that as part of his overall involvement in the Waste Management program, emphasis has been placed on an awareness and education regarding "process". Both Claudette Hunt and Jean Scoon have been participating in the short term efforts with plans to move towards long range. Jean's focus has been primarily in the EH&S arena and is working on a proposal to support that effort. Recommendations will be forthcoming that have a worldwide focus.

Joe stressed that the Purchasing effort in the short term is in support of the PDC, to take care of immediate problems. The issue that is being worked is "how to solve problems long term". Joe believes that getting in on the front-end; i.e.,

with the Vendor Approval Process in establishing effective waste management controls, should create a waterfall effect as the process moves forward.

Joe provided an update on the Recycle/Reclamation Programs emphasizing their Charter of establishing policies and programs to minimize waste through the maximization of re-use, recycling and reclamation of materials, equipment and components.

Joe highlighted some of the projects currently being worked; i.e., Recycle program with copy paper currently going on. Plans for meeting with G.E. to address the plastics issue. Discussions are also taking place with Engineering regarding parts being designed with plastic and the information that will be needed for ultimate future disposal. The area of Contract, Specs and Policies was addressed and Joe stressed the importance of provisions being made for returning and recycling of materials. Policy statements must be correct regarding records maintenance, length of time to keep material, etc.

Regarding Resale/Restock - Components - Joe stated we need to get people to use Dial to help in this process. For the future, Joe stated we will look at buyout - put into contract. We will need to determine how to manage finished goods - do we want to take to secondary market. By Q3, policy will be in place to sell generic components.

Customer Service - Bob Good

Bob advised group of waste management efforts currently being worked on in Customer Services: i.e.,

.Consolidation of the N.E. section.
.Process for identification of materials
.'92 - regionalized stocking centers.
.Cost Reduction Program

Bob highlighted areas of the DIAL program stating that the program needed visibility and support from the Purchasing organization in order to achieve success. He also discussed employee involvement during the past three months citing excellent cost savings recommendations and ideas. The Employee Involvement Program is active both in the U.S. and Europe.

Bob displayed a worldwide Material Flow slide showing volume of material (defective and obsolete) for Europe and U.S. He emphasized the need to understand how to handle through the PDC (consider local distribution). Some of the challenges currently being looked at are DEC and non-DEC hardware/software.

Bob stated that a major emphasis will be to determine how to handle waste "assets" on a worldwide basis and clarify what DEC's policy is on Asset Distribution.

In terms of the entire Waste Management effort, Bob related his feelings regarding the Steering Committee Members' responsibility to the program. He stressed that the scope of what needed to be done was far too big to rest on John's shoulders alone. He believed, as a member of the Management team, that he was committed to working the waste minimization effort within his organization. He also believed that he had a personal responsibility to Digital in the area of waste management. He spoke of the significance of the program both from an environmental and revenue producing standpoint.

Bob recommended that the Steering Committee work at defining their vision and clarifying their mission in order to ensure support and success of the waste management effort.

John agreed with Bob's recommendation and will set up a meeting in February to address those areas.

Legal Support - Foster Knight

Foster highlighted the legal support to the waste management effort. He discussed the focus of support for "scrap" computer disposal advising that disposal of "scrap" computers were subject to regulatory requirements. (Laura Goldin currently working that effort). Foster emphasized the importance of reducing the number of hazardous material vendors we're dealing with. He also cited the potential of DEC's involvement in Superfund sites and said that Laura Goldin is currently responsible for the analysis of scrap liabilities. Foster believes that Awareness Training along with greater accountability will contribute to the opportunity for cost savings, while minimizing liability.

Foster discussed the effort of the Law group and detailed the following projects being worked on:

.Legislative Initiatives - Mass Toxics Use Reduction (Laura Goldin)

.RCRA Reauthorization, Recycling Metals Reclamation, Waste Exports (Foster Knight, Laura Goldin)

.CFC Reduction Efforts, CFC Task Force Member, Augusta Aqueous Cleaning Project, Collaborative Alliance (HP/Apple) and CFC White Paper (Cindy Lewis)

.Hazardous Waste Disposal - Selection/Management of Vendors, Corporate Purchasing Support (Cindy Lewis)

.Awareness Training - incorporating Waste Minimization

cost/benefits in EHS Awareness Training Presentations (Foster Knight, Laura Goldin, Cindy Lewis)

Material Identification - Jesselyn Sullivan

Jesselyn highlighted the Charter of the Material Identification group: i.e., To manage the cross-functional information requirements that will support internal users, vendors and customers in properly managing Digital products and components through a hierarchy of waste: reduction, reuse, recycling and disposition. This includes defining disposition requirements, assuring that material sources accept and act on their responsibility to properly identify materials for composition and disposition, and that the required systems and tools which support the activities of the Waste Management Team are identified and developed.

Jesselyn discussed the importance of having a policy for the identification of the composition and disposition requirements of Digital products and components. She also cited the importance of a business model that would include the identification of sources for information (PBU's, Import/Export, Legal), along with associated data bases involved that will make information easily accessible. Consideration is being given to sending letters to major manufacturers, asking them to specify for us the hazardous material components in their products. Foster agreed to get back to Jesselyn regarding this effort. Jesselyn advised that she and John are scheduled to talk with one of the PBU's regarding establishing a pilot for the identification process.

Communications - John Caulfied

John discussed an upcoming article that he wrote on Waste Minimization. It will be published in a coming issue of the Finance Newsletter. He also stressed the importance of communicating the waste minimization area and advised that this project will be worked aggressively over the next few months. Regarding "cafeteria changes", John is looking for someone to "champion" this cause.

Meeting was adjourned with plans for the next meeting tentatively set for February 2. Confirmation, time and place will be forthcoming.

d i g i t a l

INTEROFFICE MEMORANDUM

TO: Waste Management Core Group

DATE: 30 August 1989
FROM: THERESA BUCKLEY
DEPT: CORPORATE PERSONNEL
EXT: 223-3192
LOC: MLO3-2/T44
NET: MILVAX:

SUBJECT: MINUTES OF WASTE MANAGEMENT CORE GROUP MEETING 8/24/89

********** DIGITAL CONFIDENTIAL **********

John provided the group with an update, discussing the proposed consolidation of U.S. Disposal sites, citing the importance of determining what we will need, i.e., capacity and equipment to achieve this objective. Meetings have been held with Bob Good, Doug Hammond and Lou Gaviglia to discuss ownership and ultimate locations.

A briefing was given to Ken Olsen on the proposed consolidation. He received the proposal enthusiastically and he would like to see this accomplished as soon as possible.

John speculates that it will take 6 months to pull off consolidation. Slides were shown that depicted the specific geographies and corresponding disposal data.

John shared other information with the group regarding his recent trip to Florida and visits to other companies.

Corporate Materials - Bill Boudette

Bill presented a slide overview of the programs currently being sponsored. He stated that the focus of the program was primarily on Administrative Purchasing (non-inventory products) throughout the Northeast area. Although a local program, Bill stated it has national impact. The major purchasing program is known as "total cost" with a goal to insure the best business terms and the lowest total product costs. Benefits: 10% lower costs of purchased materials.

Bill emphasized the importance of being tied in to all organizations and reviewed a dependency listing by functional activity. A goal is to have Field Administrative Purchasing incorporated into the total cost program (waste minimization).

A major activity for this program will be awareness/education.

A major goal will be the assessment of the current Dial program, reviewing key problems and establishing goals to correct/enhance the system. Goal is to clean up the database to get program streamlined.

Bill has received some recommendations regarding Dial; i.e., may be enhanced by better identification process, considering the formation of a Dial User Group, considering publishing article on Dial in the Management Memo. Bill advised that a new manager had been hired, Paul Coty to manage the Dial program. A major problem with dial has been the lack of clarification regarding ownership/accountability.

Ken Maguire discussed the importance of inventory waste minimization efforts across all products and areas. He cited that they will focus this effort on three strategic programs:

.10% annual reduction in obsolescence provisions
.Increase waste reduction in new product design
.reduce disposal of non-inventory material

Ken's slide presentation elaborated further on the three strategic programs, citing the goal, actual dollar yields and proposed FY'90 dollar yield. He cited the benefits and the dependencies required in order for the program to be successful.

Packaging - Larry Nielsen

Larry presented an overview of the organizations serviced and discussed the activities of the Worldwide Packaging Management Team. The current agenda WPMT is focused on regarding waste minimization is: Environmental Impact, Reusable Packaging and Packaging Standardization.

Larry discussed some of the programs currently sponsored; i.e. Packaging/CFC/ Environmental Focus group chaired by Dennis O'Sullivan in Packaging. This committee is communicating activities related to packaging, CFC's and the environment in cooperation with Corporate Environmental Affairs, Legal, Packaging Commodity Management and other involved organizations.

Packaging Materials Selection Task Force goal is to establish and maintain a selection priority for environmentally preferred packaging materials. A short term priority is CFC processed packaging material.

The Reusable Packaging Program has 3 tentative metrics; i.e., waste reduction, cost reduction and number of items utilizing reusable packaging. Larry presented a slide that provided estimates of today's costs relating to Inbound Inventory Purchased Materials FY'89, DEC Interplant Shipments, Outbound Shipments to Customers, Total Material Costs and (crude) estimate of waste.

An overview was given on the specific source reduction efforts in IPE; i.e., reduced cabinet packaging, reusable containers for modules and assorted cost reductions which also reduce packaging waste.

Larry advised the group that we had been invited to join the Coalition

of Northeastern Governors. Trade associations of nine Northeastern states with a goal of working common issues to save the environment and influence legislation.

EH&S - Cary Gherman

Cary presented an overview of the Waste Management Milestones, and the role that Corporate EH&S has played. Specifically, a Vendor EHS summary as developed, EHS risks for backlog options was evaluated; training provided for disassembly operation along with the establishment of EHS requirements. Hazardous materials were identified in scrapped equipment and there was both review/approval of vendors for reclamation/disposal. EH&S support was also provided to worldwide PDCX operations. EH&S also participated in the development of the PDC policies.

Current activities include performing vendor/site reviews/assessments; evaluating/reporting EH&S risks, continued support to WW PDC's, evaluation of CRT reclamation/disposal options, identifying new reclamation methods/vendors, completing material composition breakdown by product and providing EH&S support to Waste Minimization project.

The impact of the EH&S programs were cited as:

-Identify and comply with EHS laws WW, Reduce risks to Environment/People, Reduce company liability, Maximize resource recovery/conversation; Reduce/track hazardous material in products/processes and reduce waste.

CSL - Jesslyn Sullivan

Jesslyn presented an overview of the CSL Scrap Disposition Program. The program goal is to identify the controls and processes required to render Field Service, Worldwide in a fiscally sound, operationally secure and environmentally compliant manner in the handling, transportation, storage and disposition of scrap. Jesslyn discussed the responsibilities of the various committees; i.e., Waste Management Steering Committee, F.S. Steering Committee, Scrap Program Team, and the F.S. Review Team.

Program Objectives were highlighted;

.Document current scrap/HZM activities in the Field Service Business in the U.S., Europe and GIA.

.Assess effectiveness and develop short term plans for any required corrective action, and

.Develop the long term strategy for the processing of F.S. scrap and Hazardous Material, worldwide.
Jesslyn described the scope of the program as; (a) Worldwide, Country specific; State/Region Specific where required (b) addresses Field Service Scrap, (c) Does not exclude a Cross-Organizational solution.

A slide was presented on the Scrap/Waste Management Activities, citing those activities that were Customer Service unique versus Corporate.

In addition to the Scrap Disposition Program, Jesslyn discussed the CSC Programs that addresses: End of Service Life, Integrated Service Delivery, Managed Menu and Customer Buy-back program.

John closed the meeting by emphasing the importance of working as a team, possessing creative thinking and taking ownership. John plans to work with the right people to crystallize his goals, however, he needs to know who the people are that are working areas of waste management in the company.

In reviewing the chart presented at the first meeting, John cited that the Area, Sites and Plants are presently not working the issue at all. A person designated to work the U.S. is necessary to the success of the program and John plans to have a conversation with Lou Gaviglia as well as Mike Kalagher to address this issue. John also hopes to have Ed McDonough or Dick Paleocene recommend someone to own the issue for GIA.

In the area of New Products, a lot of discussion around the "needs" took place, however, group was unable to come up with who should have ownership. Jesslyn took responsibility for heading up a sub-group to work at determining what activities exist in the New Products area and whether or not they address waste minimization.

In the area of Support Function, John stated again the need for a 5 year EH&S Plan -- John will follow-up with Dave Barrett.

John recommended that a Rewards/Recognition program should be considered to support the overall waste management effort. Theresa will take responsibility for determining existing programs.

John requested the presentors to provide him with the names of the designated responsible individual for the activities that were cited in the various presentations.

Note: We agreed to meet again on;

September 21, 1:00-5:00 p.m. & October 26, 9:00-5:00 p.m.

Both meetings are scheduled in the Carlisle C.R.
WJO1-2/C8

********** DIGITAL CONFIDENTIAL **********

Distribution:

TO: BILL BOUDETTE @KNX
TO: THERESA BUCKLEY @MLO
TO: JOHN CAULFIELD @GSO
TO: JOHN CHRIS @NRO
TO: CLAUDIO DITULLIO @NRO

Use the RDL option to see remainder of distribution lists.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 004278
Date: 27-Sep-1989 07:11am EST
From: John Caulfield
CAULFIELD.JOHN AT A1 at RAVEN1

at ATO

Dept: Corp. Strategic Waste
Tel No: 354-2815

TO: See Below

Subject: CORE GROUP MEETING MINUTES - SEPTEMBER 21ST

Attendees:

Jesslyn Sullivan	Dick Skola
Art LeBlanc	John Doyle
Larry Nielsen	Paul Coute
Carmine Riccioli	Rick Gasparoni
Ken McGuire	Joe Collentro

Stephen Greene represented Cary Gherman

Carmine Riccioli accepted the challenge of taking the minutes of the meeting. With this memo, I have added some of my own flavor to it. We really miss Theresa Buckley in this important area.

Introduction of the new members of the Core Group took place.

Joe Collentro	Paul Coute
Jean Scoon	Rick Gasparoni

John Caulfield gave a brief overview of the progress since the last three meetings and proceeded to express the goals of this meeting, which was to assign team captains and individuals to the specific teams. John took the liberty of preparing teams in advance so they could be reviewed and accepted. Handouts were given to attendees explaining the ownership of each module. For those of you who could not attend the meeting, a hard copy will be forthcoming. The following are the team captains.

Tracking System	Jesslyn Sullivan
Materials Components	Joe Collentro
Area Sites & Plants	John Crowley (GIA) Art LeBlanc (GIA) Claudio Ditullio (U.S.) Carmine Riccioli (U.S.) Ray Walker (Europe) Jeff Sutton (Europe) Jesslyn Sullivan (Support for all functions)

Packaging	Larry Nielsen
PDS Sites	John Crowley (GIA) Art LeBlanc (GIA) Claudio Ditullio (U.S.) Carmine Riccioli (U.S.) Ray Walker (Europe) Jeff Sutton (Europe) Jesslyn Sullivan (Support for all functions)
Support Functions	Theresa Buckley - Corp. Personnel Cary Gherman - Corporate EH&S Rick Gasparoni - Corporate Finance Peter Hunt - Corporate Security John Doyle - Corporate Distribution Foster Knight - Legal Jeff Gibson - Public Relations

Ken McGuire and Karen Salveta will be assigned to the New Products team also.

Jean Scoon was added to the EH&S Five Year Plan and Joe Collentro deleted.

The next step is for each of the team captains to start pulling their teams together and generate a plan specifically on the elelents on waste management that they now own. We will start to review those plans at the Core Group meetings.

I also agreed to eliminate standardization on selected components and materials for the time being.

We also need to identify a candidate to represent Europe at these meetings. I am not sure who accepted the challenge to find that person. I believe it was Jesslyn Sullivan or Joe Collentro, but we need someone.

Distribution:

TO: KARPINSKI.STANLEY AT A1 at RAVEN1 at ATO
TO: JOE COLLENTRO @CFO
TO: BILL BOUDETTE @KNX
TO: DAN GARAND @DAS
TO: KEN MCGUIRE @MKO

CC: MIKE FLAHERTY @MLO
CC: BOB HULT @OGO
CC: RON PAYNE @MLO
CC: TOM EATON @AKO
CC: JOHN SIMS @MLO

Use the RDL option to see remainder of distribution lists.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 004169
Date: 14-Sep-1989 05:56pm EST
From: John Caulfield
CAULFIELD.JOHN AT A1 at RAVEN1
at ATO
Dept: Corp. Strategic Waste
Tel No: 354-2815

TO: See Below

Subject: Minutes-Sept8 BOD

A Document is attached to this message

Distribution:

TO: MIKE FLAHERTY @MLO
TO: BOB HULT @OGO
TO: RON PAYNE @MLO
TO: TOM EATON @AKO
TO: JOHN SIMS @MLO

Use the RDL option to see remainder of distribution lists.

MINUTES
Overview Committee Meeting
September 8th 1989
MLO Large Conference Room

John Caulfield opened the meeting by briefing the Committee on the status of the contract with the disassembly vendor being used in Athol and Woburn. John outlined the action plan developed earlier in the week after a decision was reached not to renew the contract when it expires at the end of September. Action items discussed from that meeting were:

- Legal, (Mary Regan) would draft a letter that would notify Windham of the decision two weeks prior to expiration.

- Carmine Riccioli (U.S. Mfg.) would look into the availability of resources internally to use as a short term alternative to contracts. Carmine will also be part of a team that will develop a long term Business Plan.

- Claudio DiTullio would coordinate the effort to establish vendors that could bail material as a short term alternative after minor disassembly. He would also coordinate communications between Legal, Purchasing, Security and Operations to ensure a communications plan is in place prior to notifying the vendor.

A follow up meeting is scheduled for September 15th to brief Bob Good and Doug Hammond prior to notifying the vendor.

The next agenda item was an update of the DIAL System. This update was presented by Paul Coute the Manager of the DIAL System. Paul gave an overview of the system itself as well as reviewing DIAL statistics which included:

USER INFORMATION:

Countries 31
Locations 480
Accounts 1900

DOLLARS:

Average Listing Value $200M
FY'89 Redistribution $42 M

Paul also discussed major Accomplishments for FY'89 as well as sharing both short and long term goals.

Among the Goals:

Complete Worldwide Implementation

Increase Capital Asset Listing
Increase Quality of Data
DIAL 90
User Friendly

Several comments were made by Committee members that a communications plan be added to the goals as well as stepping up Public Relations efforts for the System. Paul was also asked the feasibility of including cost avoidance figures to his savings statements.

Paul Kapelke, the Property Disposition Center Manager from Phoenix Arizona addressed the Committee next providing an overview of his operation in the South West.

Paul discussed the group charter and the structure of the organization. He also provided a detailed summary of all workflow procedures and controls established to ensure that material is processed in an environmentally sound and secure manner.

Paul also reviewed his current Vendor base and the ongoing efforts to improve reselling efforts as it pertains to our materials.

In addition Paul discussed the recent environmental assessments completed with his major vendors being used in the South West.

John Caulfield thanked Paul for his contributions and the expertise he brings to the Waste Management Program.

Steve Greene (EH&S) closed out the meeting with a presentation on Chlorofluorocarbons (CFCs), Managing a reduction and elimination Program. Steve discussed the Scope of this issue and the fact the CFC issue fits into Waste Minimization efforts. Foster Knight suggested that the efforts in this space be included in John Caulfield's overall plan.

- Steve went on to discuss efforts within the Corporation to work the issues:
- Drawing on Technical expertise within the Company
- Establishment of a CFC/Halon Task Group
- Development of a formal Policy Statement - June 88
- CFC Action Plans
- Closely united to AEA Program
- CFC Halon Usage and Emission Reporting

John closed the meeting by the discussing his intention to establish a small core group to work the development of a business plan to establish a Property Disposition business internal to Digital. John also discussed his first

several Core Team meetings.

The next meeting will be held Friday, October 6th from 8:00-9:30 in the Large Conference Room.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 003896
Date: 08-Aug-1989 07:12pm EDT
From: John Caulfield
CAULFIELD.JOHN AT A1 at RAVEN1

at ATO

Dept: Corp. Strategic Waste
Tel No: 354-2815

TO: See Below

Subject: MINUTES

A Document is attached to this message

Distribution:

TO: MIKE FLAHERTY @MLO
TO: BOB HULT @OGO
TO: RON PAYNE @MLO
TO: TOM EATON @AKO
TO: JOHN SIMS @MLO

Use the RDL option to see remainder of distribution lists.

I am pleased to announce that Claudio Ditullio has accepted the appointment as secretary to the Overview Committee. Based on the issues discussed, I strongly urge the confidentiallity of the following minutes.

I N T E R O F F I C E M E M O R A N D U M

Date: 7-Aug-1989 01:36pm GMT
From: CLAUDIO DITULLIO @NRO
DITULLIO.CLAUDIO AT AO4 at NR
OMTS at NRO

Dept: P&CS OPERATIONS
Tel No: 234-4721

TO: JOHN CAULFIELD @GSO

CC: Cathy Heitman @NRO (HEITMAN.CATHY AT AO4 at NROMTS at NR O)

Subject: Minutes

---

* * * CONFIDENTIAL - NOT TO BE DISTRIBUTED OR COPIED * * *

The Overview Committee was briefed on Friday morning as to the status of investigation involving one of the Officers of Windham Recoveries, a disassembly vendor being used in Athol and Woburn. Ray Humphrey and John Caulfield will draft a planned response for this situation that will be used at the August 15th briefing of the Executive Committee by John Sims.

John Caulfied discussed the establishment of a Core Group that would be established to develop business plans for the various elements of the Waste Management Program including:

-New Products
-Area Sites and Plants
-Packaging
-Disposal Sites
-Support Functions

A discussion of operational alternatives or Property Disposition followed. Claudio DiTullio presented a short term plan that called for the consolidation of operations in the Northeast (Establishing in-house business within the Corporation). It was also recommended that the Phoenix Operation be used as both a short term alternative to work the backlog and as a long term processing point for all material west of the Mississippi. It was pointed out that long term the Phoenix plant may not be a viable alternative and that other alternatives would be considered for the Western operation.

The Committee agreed to the plan in principle and John Caulfied committed to work with Doug Hammond, Bob Good and Lou Gaviglia to resolve ownership issues by Oct 1.

In Light of the Windham situation John Sims asked that a one page briefing be prepared for the Aug 15 meeting detailing our short term strategy for Property Disposition.

Larry Nielsen then presented the Committee an overview of Packaging requirements and some of the current efforts under way to reduce waste in this area. Packing has been called out as one of the major programs within John Caulfield's overall Waste Management plan.

Larry will become part of John Caulfield's Core Team.

John Caulfield closed the meeting with a brief review of the Policy for the disposition of Digital Products and Components. John asked that the senior managers in the room review the material with the appropriate people in their respective organizations.

The Committee agreed to add Ron Payne's name to the approval loop. It was also agreed to review this list at the August 15th Executive Committee meeting to ensure that each member was represented by someone on the list.

A separate memo will be circulated this week with a revised approval list and with a copy of the Policy attached for those who were unable to attend on Friday. John has requested that all reviews be completed and the document approved for implementation by Oct 1st, (earlier, if there are no issues for resolution).

Action Items:

Ray Humphrey and John Caulfield will draft a planned response to the Windham situation for the August 15th meeting.

John Caulfield will prepare a one page strategy statement for that same meeting.

The Policies will be circulated for final review this week with a Oct 1 deadline for approval.

John Caulfield will meet with the appropriate senior managers to discuss a plan for consolidation of Property Disposition activities in the Northeast.

The next meeting has tentatively been scheduled for Sept 8, 1989

---------- ATTACHMENT ----------

I N T E R O F F I C E M E M O R A N D U M

Date: 26-Oct-1989 01:58pm EST
From: THERESA A. BUCKLEY
BUCKLEY.THERESA AT A1 at EMAS
Dept: Human Resources Developmt
Tel No: 223-3192

O: See Below

ubject: MINUTES OF BOD WASTE MANAGMENT 10/5/89

TTENDEES

esslyn Sullivan, Peter Hunt, Joe Collentro, Cary Gherman, Ray
umphrey, Mike Flaherty, Doug Hammond, John Caulfield, Theresa
uckley

ress RETURN to continue, GOLD MENU for options or EXIT to cancel

ıckley

ROGRAM UPDATE

ɔhn reviewed progress to date on the Waste Management Program
ffort; i.e.,

Windham vendor issue -- contract has been renegotiated.
ffective 10/31/89, Windham will no longer be a DEC vendor. John
ɔplauded the efforts of all involved in handling these
egotiations effectively.

ɔC BUSINESS PLAN

ɔhn highlighted several pending program efforts:

Disassembly
Recycle Outlet
Resolve EH&S CRT's
Wrap-up Process with Windham
Qualify Vendor

---

ress RETURN to continue, GOLD MENU for options or EXIT to cancel

ike raised concern that the PDC plan appeared to be more of a
.S. vs. a Worldwide plan. He emphasized the need to get
thol/Woburn and the West Coast defined as well as defining what
eeds to be done to get worldwide support.

oug recommended that John consider doing a review of company
osts of DEC employees vs. vendors. John agreed to talk with a 5
erson team to determine the support needed. Doug agreed to lend
hatever additional support John may require on this effort.

ohn reviewed the responsibilities of his position for the BOD
embers. He advised that both the sales and marketing
rganizations have requested him to consider working with other
ompanies on the waste management.

ike raised concern regarding John's current workload and citing
he importance of John remaining strategic vs. operational.

iscussion evolved to redefining the role of the Waste Management
OD in relation to John's efforts. Results of this discussion
re listed in the following Action Steps:

---

ress RETURN to continue, GOLD MENU for options or EXIT to cancel

WASTE MGMT BOD
08 SEPT 89

Windham

Contract expires 30Sept89, meeting of Hammd, Caulfield, Reza, Good, DiTullio, decd on contract. Meeting agreed to not renew contract, letter to be sent to Windham 2 weeks prior to termination of contract. Agreed to not purchase any of their equipment. 2 year backlog of equipment. Disassembly can keep up with current flow, but make no dent in backlog. Shredding ruled out for environmental reasons.

DIAL PAUL COUTE FOOZLE:: COUTE AET- REPORTS — CSL, CORP MATERIALS.

31 COUNTRIES, 480 LOCATIONS, 1900 USER ACCOUNTS

AVERAGE LISTING $200M, 1989 REDISTRIBUTED $42M

GOALS — complete worldwide implementation; increase capital asset listing; increase quality of data. Dial 90 — user friendly.

* 1/4 MILLION — MOVES WITHIN BETWEEN FIELD SITES, NOT RECOGNIZED IN DIAL.

I N T E R O F F I C E M E M O R A N D U M

M E M I T A L L - I N - 1 S Y S T E M

Date: 11-May-1989 10:48am EDT
From: MIKE FLAHERTY @MLO
FLAHERTY.MIKE
Dept: CORPORATE MATERIALS
Tel No: 223-5066

TO: See Below

Subject: Waste Minimization Overview Meeting Minutes - 5/5

Meeting was held May 5th in the Large Conference Room. The following issues were covered and action items as noted were scheduled for future meetings:

1. It was announced by John Sims that John Caulfield had accepted the Program Manager role. He is officially starting June 1st and is very excited with the possibility that this program holds for DEC.

2. In order to help John get rolling June 1st, we spent 20 minutes brainstorming what we felt the role was and where it should get focused. The following is the list, (unedited), of issues/areas of focus that the room felt would help John:

   - Define scope/define waste

   - Need to develop a simple worldwide message to define the scope of the work

   - John's empowerment will come with setting the "right" agenda, particularly in the next three months

   - Over time, become the focal point for excellance in this area.

   - Room needs to behave as if it works for John Caulfield

   - Keep program positive - cannot be a deficit model, needs to include positive language (not "junk")

   - Find or develop a language that excites people

   - Develop a Reward and Recognition Program

   - Develop a stron simple message

   - Get a number of small "wins" to get the 130k behind the program

- Develop scoresheet of all programs ongoing in this space and develop an evaluation process to determine "value" to DEC

- Set goals, get significant "volunteer" involvement

- Relationship of DEC and the World - Good business partner/good citizen

- Economically driven/socially responsive, tie with Corporate values

- Responsible for Audit Letter

ACTION:

3. The next step agreed to would be for each of us to send John Caulfield a one page letter defining what it is we believe the vision to be. It should be set up to help John determine what the Integrated Vision of the room should be.

   This should include two or three bullets for direction setting. In addition, please send John a list of people, organizations, and programs that you know about that are working in this space.

4. Report's were presented, (attached), from each of the major task teams.

5. The Executive Committee Update was reviewed and several comments made on content. Mike Flaherty agreed to send a copy to the committee and each member was expected to feed back information as soon as possible. The report will be consolidated and presented to the Executive Committee at the appropriate time. (determined by John Sims)

The next meeting will be held on June 2nd. Important - we are planning to have this meeting at the Athol Facility from 8:00 - 9:30. Allow yourself some extra time for travel. I will get directions out shortly.

The intent of having the meeting in Athol is for the Committee to:

- View 6M lbs. of obsolete material

- View the Windham recovery operation

Please make every effort to attend.

WASTE MANAGEMENT PROGRAM

CONTROLS COMMITTEE

STATUS 5-5-89

FINDINGS UPDATE

1. Property Disposal Process (Hammond/Good)
   - Northboro - Closed
   - Wilmington - Closed
   - Phoenix - Revised proposal. F.S. review in process.
2. Policies & Procedures - Overview Committee/Program Mgr.
3. Shipments to F.S. PDC (Good) - Closed
4. Intransit Controls - F.S. (Good) - Short term manual process strengthened
   - Defined program for automating process

5. F.S. Manufacturing (Good) - Closed

6. Stock Control System (USFS) - System enhancement Q3
   - No part returned - Unit Manager approval/ review

7. Upgrades - U.S. Field (Buckley) - New R/A policy defined. Requires integration with F.S

8. Prototype/Seed Units - Draft proposal being discussed and tested.
   - Sales seeds controlled by rotation/consignment process - closed

9. Expensed Material - 235 process - draft process proposed and being discussed.

10. Remanufacture - TPL - Closed

11. Physical Security (Humphrey) - Closed

12. Inventory Control (Melia) - New Process for measuring/ monitoring
    - Committee identified

FUTURE ACTIONS

SHORT TERM

- Ongoing maintenance of tactical fixes.

LONG TERM

- Integrated policies representing all functions and geographies.
- Implement new monitoring processes and physical security for critical parts.
- Replace logistics systems. Relate to FSL plan to simplify/change logistics processes.

STATUS REPORT
5 MAY 89

PDC OPERATIONS
- Woburn & Athol start-up 20 April 89
- sluggish start-up (learning curve)
- grinder & bailer due 12 May 89
- 500k lbs. processed
- 32 Windham emps. working
- 6 million lbs (Woo. & Athol) on-hand
- training (DEC & Windham)
    - . material handling
    - . disassembly
    - . hazardous material

OPPORTUNITIES
- transportation Woo.-> west coast
- FS sponsored industry research project

WORLDWIDE QUESTIONNAIRE
- Europe, RW to roll-up
- GIA, 10 countries documented

NEW VENDOR
- CRT recycler located
- Q process underway

GIA mgmt team established (CD meeting 1)

COMCON participation = contacts/visibility

POLICY
- first pass complete
- second pass review (5/5)
- first draft distribution (end May)

SECURITY
- func and ops support @ GIA
- local ops support
- policy input

Ted Hunt
5/5

Waste Management Project

EHS Update 5/5/89

- o Environmental Assessments
- o GIA Focus
  - Hong Kong
  - Japan
- o Plastic Recycling
- o CRT's
- o Policies/Procedures
- o Athol/OSHA
- o Packaging Issues
- o Continuing Support
  - Management Team
  - Operations - Athol/WOO

OVERVIEW COMMITTEE ACTION ITEMS

- Review Worldwide Comprehension Disposal Policy	C. Tullio
- Formal Process and Timetable for Worldwide Comprehension Disposal Policy	C. Tullio
- 30 min. EH&S Presentation	D. Barrett
- Styrofoam at Cafeterias	D. Barrett
- Disposal of Other Vendor's Computers	B. Good
- Develop Reward/Recognition Problem	J.Caulfield

I N T E R O F F I C E M E M O R A N D U M

Date: 3-Jan-1989 12:32pm EST
From: HANK MILLETTE
MILLETTE.HANK
Dept: U.S. FIELD SERVICE
Tel No: DTN 268-3102

TO: JOHN SIMS (PAPER MAIL)

CC: DON ZERESKI (PAPER MAIL)
CC: Remote Addressee (ANNE KREIDLER @CFO)
CC: Remote Addressee (JEFF GIBSON @MLO)

Subject: EXECUTIVE COMMITTEE BRIEFING - Waste Mgmt Program

Jeff and Anne gave me some inputs and I have incorporated them into the attached set of overheads for you use.

I have also included the input, from each of the five subcommittees of the Waste Management Program as preparation info for you prior your presentation.

Regards,

HM/bmh

INPUT FOR EXECUTIVE COMMITTEE PRESENTATION FROM:

Waste Minimization

Property Disposition

Environmental, Health and Safety

Security

Controls

WASTE MANAGEMENT PROGRAM UPDATE
FOR EXECUTIVE COMMITTEE

WASTE MINIMIZATION (12/29/88)

SHORT TERM GOALS AND ACCOMPLISHMENTS

- Appointments to Committee
  - Co-chair — Kevin Melia, Dave Grainger, Frank McCabe
  - Committee Leader — Mike Flaherty
  - Program Team — Ken McGuire, Bill Boudette
  - Committee Members — In Process
- Began Plastics Analysis
- Explained program at all Corporate Aging Reviews in Q2
- Continued emphasis already in place for re-allocation of product i.e., DIAL, IPT, TREG, etc.
- Began sizing resource requirements

LONG TERM GOALS

- Develop and implement education packages on Waste and Waste Minimization.
- Develop programs and begin working process of minimization at Phase 0 of design.
- Continue to develop tools to manage assets better. Next on list productization tools for Inventory.
- Develop and implement Reward and Recognition programs for individuals and groups successful in this area.
- Develop process to integrate results (and causes) into Business Unit P&L's.

WASTE MANAGEMENT PROGRAM UPDATE
FOR EXECUTIVE COMMITTEE

PROPERTY DISPOSITION (12/30/88)

SHORT TERM PROGRESS

Internal Controls

- Completed Worldwide Vendor Selection Template
- Developing BOA's for Key Suppliers
- Environmental Classification of all Material.
- Shredding Boards Inhouse

Evaluation of Alternative Destruction/Reclamation Processes

- Vendor Shredding/Incineration
  - Westinghouse (Pittsburg PA.)
  - Sabin Metals (Rochester NY.)
  - Allied Metals (Phoenix ARIZ.)

- Inhouse Disassembly

  - Northboro, Woburn, Phoenix
  - Salem Initiative

Potential Litigation Issues

- C&C Termination
- EPA Claim Against Boliden Metech

(Statements A & B can be used as notes for John when discussing potential litigation).

(A) C & C has made claims against Digital based on Digital's discontinuation of their services. These claims are presently being investigated. Actual litigation has yet to be instituted and no Complaint has been filed.

(B) Boliden Metech has recently been investigated by the Environmental Protection Agency (EPA) and the corollary agency for the State of Rhode Island, based on a report that PCBs were being improperly handled or disposed of. Consequently, they may be faced with litigation. Boliden may assert that Digital submitted equipment for disposal which contained PCBs; Digital contests this assertion. No formal proceedings have been instituted or threatened. This potential litigation matter is being investigated.

WASTE MANAGEMENT PROGRAM UPDATE
FOR EXECUTIVE COMMITTEE

ENVIRONMENTAL, HEALTH, AND SAFETY (EHS) (12/21/88)

SHORT TERM PROGRESS

- Established EHS Task Force/Short & Long Term Goals/Resources
- Developed Vendor Selection Summary/Supplement
- Hired an Environmental Consultant - (materials sampling/analysis)
- Visited all U.S. PDC Operations
- Working Westinghouse/Other Vendor Options
- Supporting PDC Operations to work Backlog
- Finalized MSDS for Shredded Modules

LONG TERM GOALS

- Input to Waste Minimization Plan.
- Provide EHS Support to Management Team
- Working Europe/GIA EHS Issues
- Developed Basic Principles of Waste Management:
    - Provides a Framework for Developing a Worldwide Strategy
    - Addresses Legal, EHS, Public Relations, Public Policy, and Communications Issues
    - Consistent with other Major Corporations and with Public Interest Groups
    - Principles
        - Comply with Law
        - Reduce Wastes
        - Manage Wastes to Control Significant Risks
        - Ensure Balanced Decision Making
        - Strengthen Public Policy Commitment

WASTE MANAGEMENT PROGRAM UPDATE
FOR EXECUTIVE COMMITTEE

SECURITY (12/30/88)

SHORT TERM PROGRESS

- Security's specific section completed and added to the vendor's questionnaire.
- Physical security reviews at existing warehouses.
  Security review of PDC P&P's under way.
  Security provided case by case for short term fixes i.e. module transport from NRO to WOO.
- Security review and recommendations for individual vendor proposals to clean up backlog (i.e. Westinghouse, etc.).

LONG TERM GOALS

- Security minimums and requirements included in a boilerplate BOA. Corporate Security standards and procedures (especially physical security) documented for the handling, storage, transit and disposition of designated high value company material.
- Training and awareness tools and requirements established for the security organization programs.
- Compliance testing and auditing of the internal (company) and external (vendors) components of the overall program.
- Influence the establishment and implementation of the company programs in support of the overall effort, i.e. inspection policy, serialization, bar coding, etc.

WASTE MANAGEMENT PROGRAM

CONTROLS COMMITTEE

STATUS 12-16-88

- o Met with key Finance Managers:
  - . Bob Hult
  - . Frank Paglia
  - . Harry McKnight
  - . Bob Faulconer

- o Reviewed all findings - assigned specific responsibilities
  - linked to operating managers' responsibilities

1. Property Disposal Process
   - . Northboro - Harry
   - . Wilmington - Frank - Process in place
   - . Open issue - who represents Phoenix; differing opinions
2. Policies & Procedures - Overview Committee
3. Shipments to F.S. PDC - Frank — Process in Place
4. Intransit Cntrols - F.S. Frank/Bob H. — Process in place
5. NSO Recycling - Frank
6. Stock Control System - Bob H. (U.S. Field)

JAW
12/88

7. Upgrades - U.S. Field Sales - Steve Behrens

8. Prototypes - Seed units - Bob F. - Policy in approval process

9. Expensed Material - Bob F.

10. Remanufacture - Tom Eaton

11. Physical Security - Per finding detail - Tom/Security, Frank, Bob F., Harry

12. Inventory Control - Variance summation/analysis - Bob F. with Dave Spratt
    - Mike Flaherty to Chair
    - Requires Corporate policy change and operating management support across all major functions

o <u>Resources</u>

. No incremental Finance/Admin. resources to date

JAW
12/88

WASTE MANAGEMENT PROGRAM

Briefing for Executive Committee

By:

John Sims

BACKGROUND

KEY FINDINGS FROM INTERNAL AUDIT REPORT ISSUED OCTOBER 31, 1988

- A lack of world-wide policies and procedures to safeguard material disposal. NO ONE group accountable.

- Basic operating control weaknesses at the Property Disposal Centers (PDCs).

- A lack of policies governing hazardous waste disposal and compliance with current and changing legislation.

RESOLUTION

RESOURCES NOW IN PLACE TO HANDLE THE TASKS

SHORT TERM

Clean up what we have !

Secure disposal of the tonnage we have on hand by June 30th.

LONG TERM

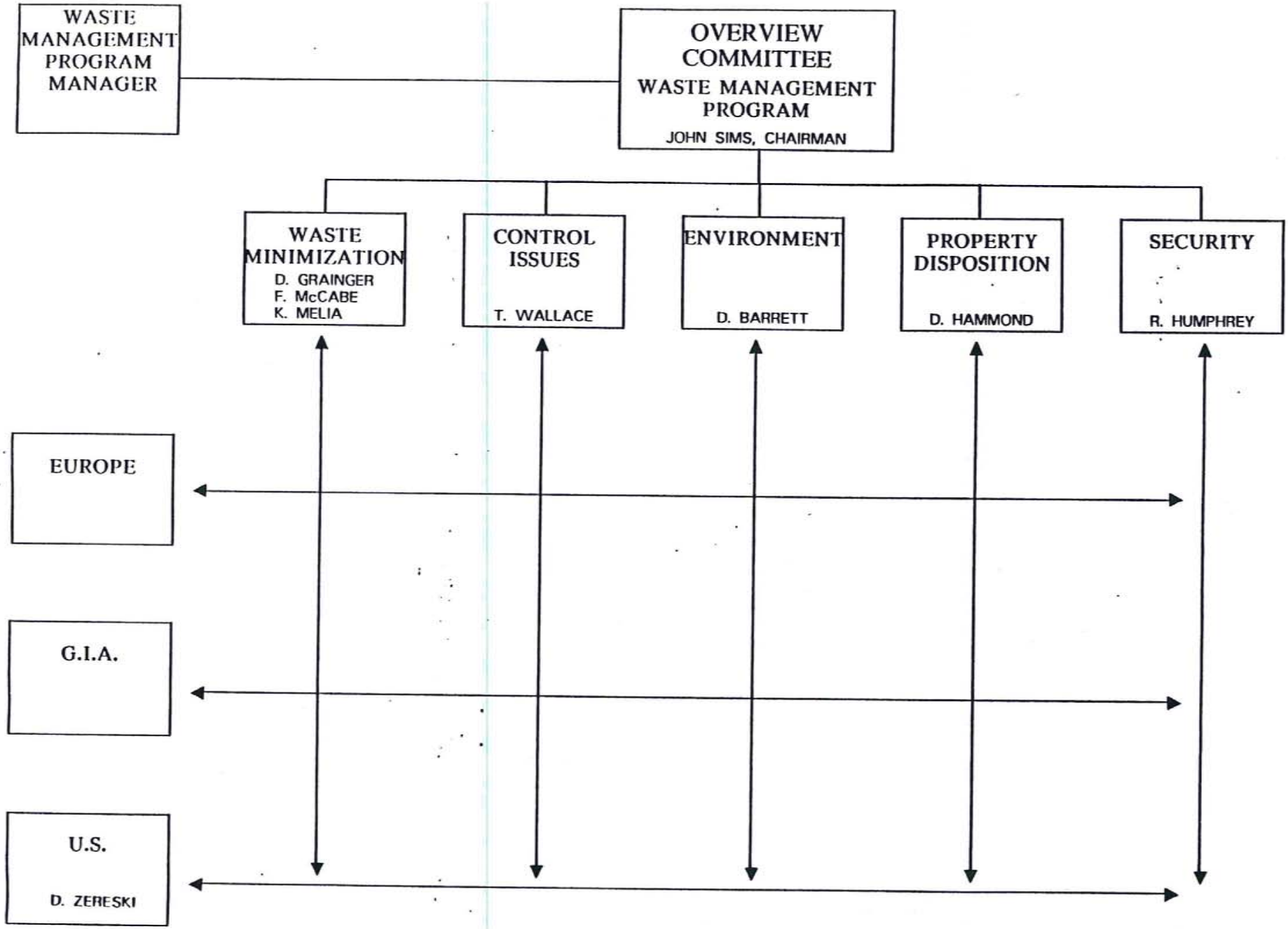
Ongoing Corporate Program for Waste Management.

6 million pounds annually, valued at $500M

- waste disposal
- source reduction
- compliance
- worldwide education
- etc.

OVERVIEW COMMITTEE FOR WASTE MANAGEMENT PROGRAM

Chairman	John Sims
Program Manager	— —
Corporate Field Service	Dave Grainger
Corporate Quality	Frank McCabe
Corporate Materials	Kevin Melia
Corporate Internal Audit	Tony Wallace
Environmental Health & Safety	David Barrett
Corporate Administration	Doug Hammond
Corporate Security	Ray Humphrey
Corporate Law Department	Foster Knight
Corporate Public Relations	Jeff Gibson



171317

SCOPE OF WASTE MANAGEMENT PROGRAM

CREATE NEW POLICIES AND STANDARDS ASSOCIATED WITH:

- WASTE MINIMIZATION

  Design and manufacturer future products to minimize waste, scrap and environmental concerns.

- CONTROL

  Implement control procedures to minimize shrinkage, diversions, theft, etc.

- ENVIRONMENT

  Meet our obligations as a "World Class Company" to minimize or eliminate environmental pollution.

- PROPERTY DISPOSITION

  Manage the disposal of waste/scrap consistent with Digital's objectives.

- SECURITY

  Ensure safe keeping of Digital's assets.

REQUEST YOUR SUPPORT FOR:

BASIC PRINCIPLES OF WASTE MANAGEMENT

- Provide a framework for developing a worldwide strategy.
- Address cross-functional, worldwide issues.
- Consistent with other major Corporations.
- Comply with principles of law, waste management, community and government relations.

COST IMPLICATIONS — U.S.

FY'89	2.0M	6 people
FY'90	4.0M	10 people

Waste Management Program should be self-sustaining due to Salvage Recovery beginning in FY'91.

I N T E R O F F I C E M E M O R A N D U M

Date: 28-Nov-1988 10:12am EST
From: FOSTER KNIGHT
KNIGHT.FOSTER AT A1 AT WITNES

AT PKO

Dept:
Tel No:

TO: See Below

Subject: DRAFT Waste Management Principles -- Review & Comment

****

THIS MESSAGE IS FROM DAVID BARRETT AND FOSTER KNIGHT

****

ACTION: Please review and comment and arrange for further distribution within your organizations, as appropriate.

We are sending the attached - DRAFT Principles of Waste Management - for review and comment to senior corporate and U.S. area management who are involved with or have responsibilities for Environmental, Health and Safety (EHS).

The draft is also circulating with senior management in GIA and Europe.

Please distribute this draft within your organizations, as appropriate, for further review and comment. Comments are requested by December 31, 1988. Please send comments to David Barret @MLO or Foster Knight @MSO.

BACKGROUND:

The Waste Management Principles are intended to establish a framework for development of a Digital worldwide strategy for managing our wastes, including hazardous and non-hazardous wastes and our increasing volume of scrap computers.

The Waste Management Principles grew out of the sludge waste export review we conducted this past summer. It became apparent that we needed to look at the waste issue more broadly than simply its "export" aspects. Waste management is truly a global issue for Digital and therefore requires a global perspective and core management principles.

*********DRAFT*********

BASIC PRINCIPLES OF WASTE MANAGEMENT

1) We will comply with all laws.

2) We will reduce the amount of wastes we generate.

3) We will manage wastes that are generated to control significant risks and to minimize long-term liabilities.

4) We will involve appropriate corporate, line and field organizations in waste management decisions.

5) We will work with governments and public interest groups in the development of sound public policy (e.g., ensuring reasonable laws and availability of waste management facilities).

Explanation

of

Principles

1) Compliance with the Law

   - We must know, understand and comply with all waste management regulations applicable to our sites and activities in each country in which we do business.

2) Waste Reduction at the Source

   - We will take advantage of significant opportunities to reduce the generation of wastes at the source through cost-effective changes in our process technologies and materials usage, and through careful designing of new products and process technologies. These changes will offer Digital significant savings in reduced materials usage, waste management costs, and will help protect the environment, conserve resources,

and reduce risks to employee and public health and safety.

3) Controlling Significant Risks

- We will address all types of wastes posing significant risks, including scrap computer wastes.

- We will assess the environmental and employee/public health risks of all waste management practices. Similar risks will then be managed in a similar way in each country in which we do business even though local laws may not require us to manage the risks. In other words, we will begin with ensuring compliance with local laws and then go beyond legal requirements, if necessary, to ensure that significant risks are controlled.

- To the maximum extent practical, we will manage wastes in the country of origin to avoid exports; however, where this is not possible, we will choose alternatives, carefully balancing business, environmental, public health and safety, and public opinion concerns. In all cases where wastes must be exported, we will obtain senior management approval and will manage the waste exports in strict compliance with applicable laws and with the objective of controlling all significant environmental and employee/public health and safety risks; waste export management practices will always meet or exceed the standards of both the originating and receiving countries.

- We will maximize environmental and public health protection and reduce long-term liabilities by following a waste management strategy that gives highest priority to source reduction and relies on land disposal only as a last resort:

  Waste Management Hierarchy Listed In Order of Preference

  - Source reduction: don't generate wastes in the first place;

  - Recycle/Reclaim: for wastes that are generated, reuse and recycle wastes for the original or some other purpose, such as materials recovery or energy production;

    (recycling/reclamation on-site or internally should be given preference over external recycling/reclamation whenever feasible)

  - Treatment (including incineration): convert wastes into less harmful substances through destruction, detoxification, and neutralization;

  - Secure Land disposal: place wastes in secure land sites using volume reduction, encapsulation, leachate containment, monitoring, and controls over air and

surface/subsurface waste releases.

- We will audit all waste management practices, including off-site vendors, to ensure that risks are being (properly) managed.

- We will work with other companies ~~in seeking~~ to reach solutions to managing wastes, particularly the large volume of scrap computer wastes.

- Agreements with third parties involving transfers of technology will include guidelines and training on managing wastes incident to the technology.

4) Internal Buy-in and Communication

- All significant waste management decisions, including public policy issues, must be understood and approved by appropriate corporate, line and field organizations, including the business that generates the waste, affected area/country managers, and public relations.

5) Public Policy

- We will put risks associated with waste management practices in perspective for our employees and the public.

- We will work with governments ~~in establishing~~ to establish reasonable laws, and ~~in ensuring~~ to ensure the availability of adequate waste management facilities in each country in which we generate significant wastes. Public policy initiatives will be incorporated into the country business strategy.

Distribution:

TO: JOE ZEH @MRO
TO: DICK WALSH @OGO
TO: DOROTHY TERRELL @MLO
TO: ADRIANA STADECKER @HLO
TO: HERB SHUMWAY @NRO
TO: ROD SCHMIDT @WJO
TO: GRANT SAVIERS @MLO
TO: TED SARES @CFO
TO: FRED RUFFIN @UCF
TO: BILL ROBINETTE @HLO

TO: MICK PROKOPIS @MLO
TO: JOE PERMATTEO @SHR
TO: RON PAYNE @MLO
TO: BOB PALMER @HLO
TO: ROB OKEEFE @TFO
TO: AL MULLIN @MSO
TO: KEVIN MELIA @MLO
TO: CHRIS MCGILL @UCF
TO: FRANK MCCABE @MLO
TO: DOM LACAVA @MLO
TO: ILENE JACOBS @AKO
TO: GRACE HINCHMAN @WNP
TO: LEE HAYES @MLO
TO: BILL HANSON @MLO
TO: DOUG HAMMOND @MLO
TO: DAVE GRAINGER @OGO
TO: BOB GLORIOSO @MRO
TO: BOB GOOD @DAS
TO: JEFF GIBSON @CFO
TO: LOU GAVIGLIA @WJO
TO: CHARLOTTE FREDERICK @MLO
TO: DICK FARRAHAR @MLO
TO: SUSAN DINGA @DAS
TO: BOB DECELLES @NRO
TO: JIM CUDMORE @MLO
TO: HENRY CROUSE @MLO
TO: CLIFF CLARKE @OGO
TO: JOHN CAULFIELD @GSO
TO: GEORGE CHAMBERLAIN @MLO
TO: ROLAND BERGERON @GSO
TO: ERLINE BELTON @CFO
TO: CLINT ACKERMAN @MLO

CC: POLLY STRIFE @NRO
CC: JIM STEWART @CFO
CC: TOM SIEKMAN @MSO
CC: JIM ROGERS @MLO
CC: RICHARD PORTER @CFO
CC: CHUCK MCGRAIL @DAS
CC: CINDY LEWIS @MSO
CC: STEVE GREENE @MLO
CC: LAURA GOLDIN @MSO
CC: MARIETTA ETHIER @MSO
CC: THERESA BUCKLEY @MLO
CC: DAVID BARRETT @MLO

By:

John Sims

BACKGROUND

KEY FINDINGS FROM INTERNAL AUDIT REPORT ISSUED OCTOBER 31, 1988

- A lack of world-wide policies and procedures to safeguard material disposal. NO ONE group accountable.

- Basic operating control weaknesses at the Property Disposal Centers (PDCs).

Press RETURN to continue or EXIT SCREEN to exit

- A lack of policies governing hazardous waste disposal and compliance with current and changing legislation.

RESOLUTION

RESOURCES NOW IN PLACE TO HANDLE THE TASKS

SHORT TERM Clean up what we have !

Press RETURN to continue or EXIT SCREEN to exit

Secure disposal of the tonage we have on hand !!!

___ pounds will be properly disposed of by June 30th.

LONG TERM

Ongoing Corporate Program for Waste Management.

6 million pounds annually valued at $500M

OVERVIEW COMMITTEE FOR

WASTE MANAGEMENT PROGRAM

Press RETURN to continue or EXIT SCREEN to exit

Chairman	John Sims
Program Manager	
Corporate Field Service	Dave Grainger
Corporate Quality	Frank McCabe
Corporate Materials	Kevin Melia
Corporate Internal Audit	Tony Wallace
Environmental Health & Safety	David Barrett
Corporate Administration	Doug Hammond
Corporate Security	Ray Humphrey
Corporate Law Department	Foster Knight
Corporate Public Relations	Jeff Gibson

Press RETURN to continue or EXIT SCREEN to exit

REQUEST YOUR SUPPORT FOR:

BASIC PRINCIPLES OF WASTE MANAGEMENT

- Provides a framework for developing a worldwide strategy.
- Addresses Legal, EHS, Public Relations, Public Policy and Communications issues.
- Consistent with other major Corporations and with public interest groups.
- Principles

  -- Comply with law

Press RETURN to continue or EXIT SCREEN to exit

-- Reduce wastes

-- Manage wastes to control significant risks

-- Ensure balanced decision making

-- Strengthen public policy commitment

COST IMPLICATIONS -- U.S.

FY'89	1.5M	6 people
FY'90	4.0M	10 people

Press RETURN to continue or EXIT SCREEN to exit

-- Strengthen public policy commitment

COST IMPLICATIONS -- U.S.

FY'89	1.5M	6 people
FY'90	4.0M	10 people

Waste Management Program should be self sustaining due to Salvage Recovery beginning in FY'91.

---

202 lines printed - Press RETURN

PROPERTY DISPOSAL CENTER

ASSET RECOVERY

(FROM OUR CHARTER)

DISPOSE OF MATERIAL FOR WHICH THE
CORPORATION HAS NO FURTHER USE
WHILE PROTECTING THE CORPORATION IMAGE

- COORDINATE DONATION OF USED EQUIPMENT AND FURNITURE TO CHARITABLE, NON-PROFIT ORGANIZATIONS (NON-DIGITAL MATERIAL)
- SALES OF NON-PROPRIETARY EQUIPMENT AND MATERIAL TO QUALIFIED DEALERS/BROKERS
- PROCESSING PROPRIETARY EQUIPMENT AND MATERIAL USING QUALIFIED PROCESSORS FOR RAW MATERIAL RECOVERY

THE PDC HAS NO PROFIT OBJECTIVES

*3M/4600

REDUCE DEC LIABILITY
BY
DESTROYING PROPRIETARY MATERIALS

- PROTECT SALE AND FIELD SERVICE
- PREVENT DEFECTIVE PART RESALE TO:

  - OUR CUSTOMERS
  - OUR COMPETITION
  - ANOTHER DEC PLANT
  - POSSIBLE INJURY CLAIM

PROPER PAPERWORK AND CONTROLS

USE:

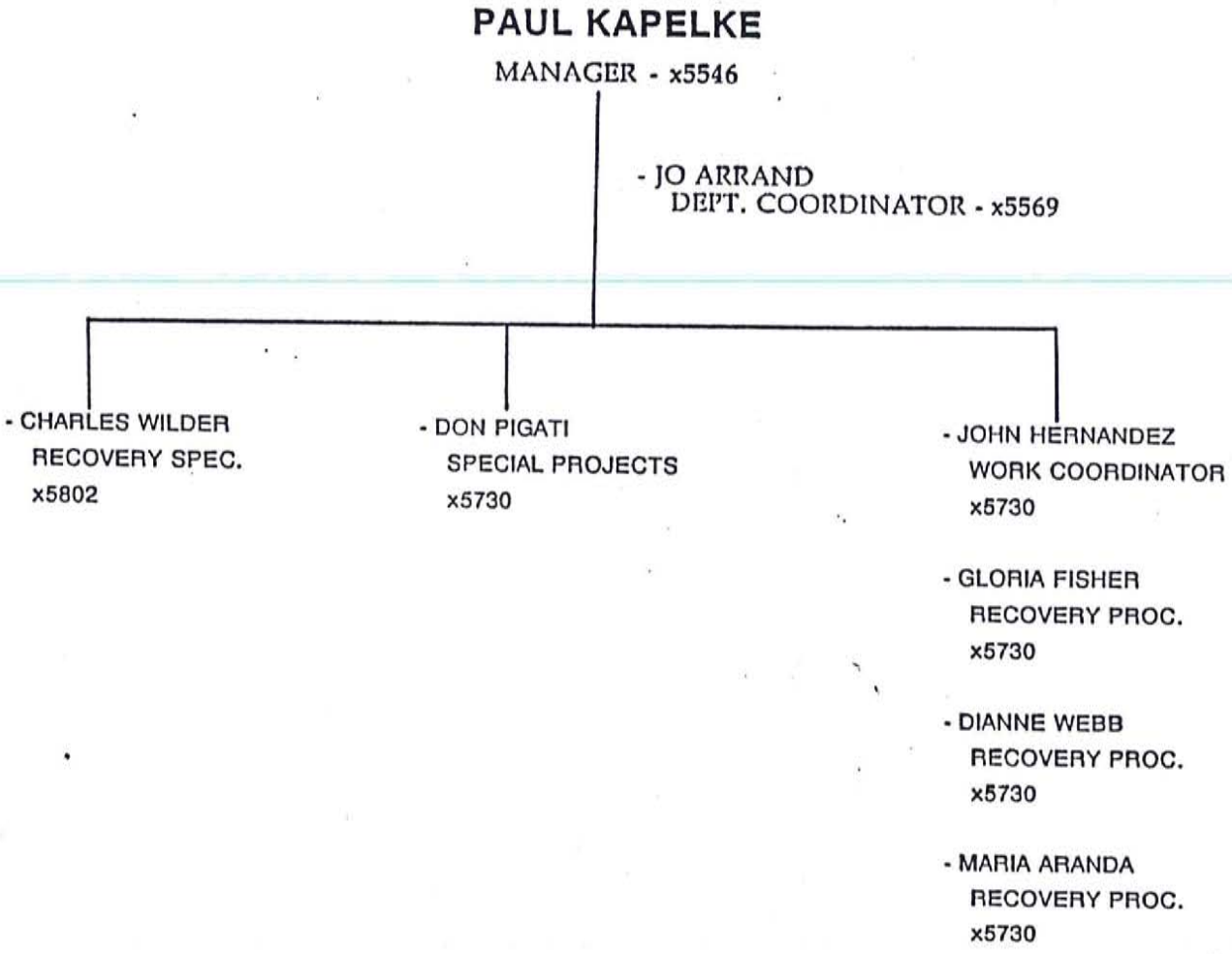
DIAL - DIGITAL IDLE ASSET LISTING FOR INVENTORY AND CAPITAL EQUIPMENT

TRADE-IN'S - THRU ACQUISITION TO THE ORIGINAL VENDOR

REFERENCE DOCUMENTS

- CORP ACCOUNTING AND REPORTING MANUAL "DISPOSITION OF PROPERTY PLANT AND EQUIPMENT" (#304-04)
- MFG/ENG FINANCIAL CONTROL POLICIES, PRACTICES AND PROCEDURES
- "DISPOSITION OF IDLE, SURPLUS, OBSOLETE AND SCRAP CAPITAL EQUIPMENT" (#7-100)
- "DISPOSITION OF EXCESS, OBSOLETE AND SCRAP INVENTORY" (#6-125)
- CORPORATE POLICY MEMORANDUM "CORPORATE CONTRIBUTION POLICY (#79-3)

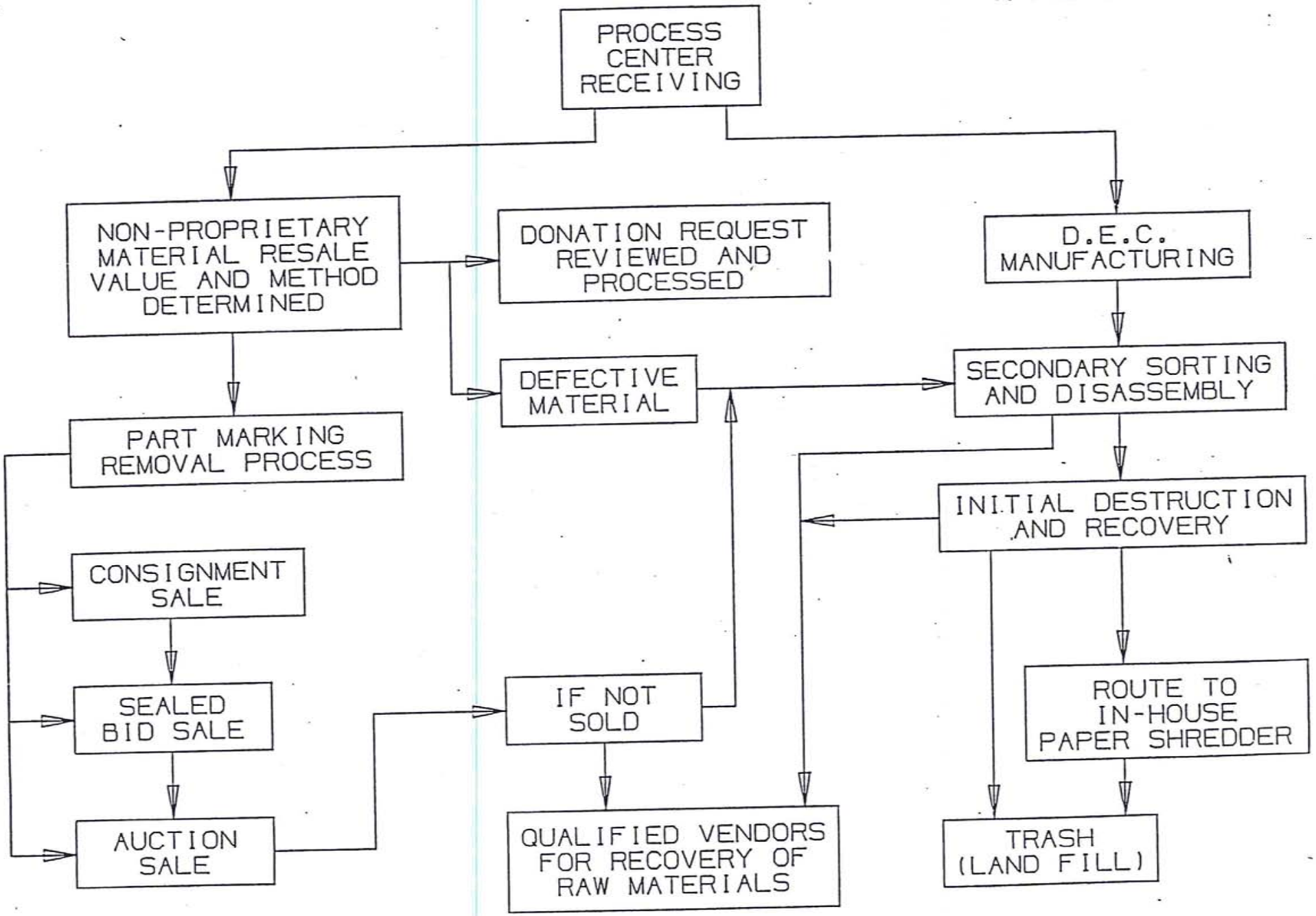
ASSET RECOVERY/EXCESS COMPONENT DISPOSITION
MAY 1989



ASSET RECOVERY

SCRAP MATERIAL
(ZERO VALUE)

PHOENIX PROPERTY
DISPOSAL CENTER
(PNO-PDC)



ASSET RECOVERY

OUR SUCCESS STORY

CUSTOMER SERVICE

- SERVICE ALL FACILITIES IN THE WESTERN REGION INCLUDING MEXICO WITH EQUAL PRIORITY
- PROVIDE ASSISTANCE WITH POLICIES AND PROCEDURES
- COMMUNICATION
- PROVIDE "HOW TO" INSTRUCTIONS
- MANAGE CHANGE

NO BACKLOG

- USE OF SHIPPING AUTHORIZATION NUMBER SYSTEM (SAN)
- SORTING SCRAP MATERIAL AT CUSTOMER SITE (DEC FACILITIES)
- QUALIFYING SITES TO DISPOSE OF NON-PROPRIETARY SCRAP AND CAPITAL
- REVENUE - SELF SUPPORTING - THEY DO THE WORK, THEY GET THE MONEY
- REVOLVING DOOR - ONCE PROCESSED - EVERYTHING HAS A PLACE TO GO
- NON-PROPRIETARY MATERIAL DIRECT SHIPMENTS TO QUALIFIED BROKERS

CONTROLS

- MANAGE TO POLICIES AND PROCEDURES
- WE ARE A BUSINESS
- WASTE MINIMIZATION AND GOVERNMENT REGULATION (HAZ)
- ALL BROKERS/PROCESSORS (PARTNERS) QUALIFIED AND UNDER CONTRACT
- CONSIGNED EQUIPMENT ON-LINE STATUS
- PDC/AR "DESK TO PROCEDURES" UPDATED BY THE TEAM
- SELF AUDITS
- SECURITY - WITNESS PROGRAM
- SBA (INVOICE TRACKING)
- RECONCILATION WITH FINANCE (FMC) MONTHLY

TEAM WORK

- ALL FACILITY FUNCTIONS INVOLVES IN OUR BUSINESS
- TRAINING - CONTINUES IMPROVEMENT
- REWARDS AND RECOGNITION

FUTURE

IMPROVE PROCESSES (GOALS)

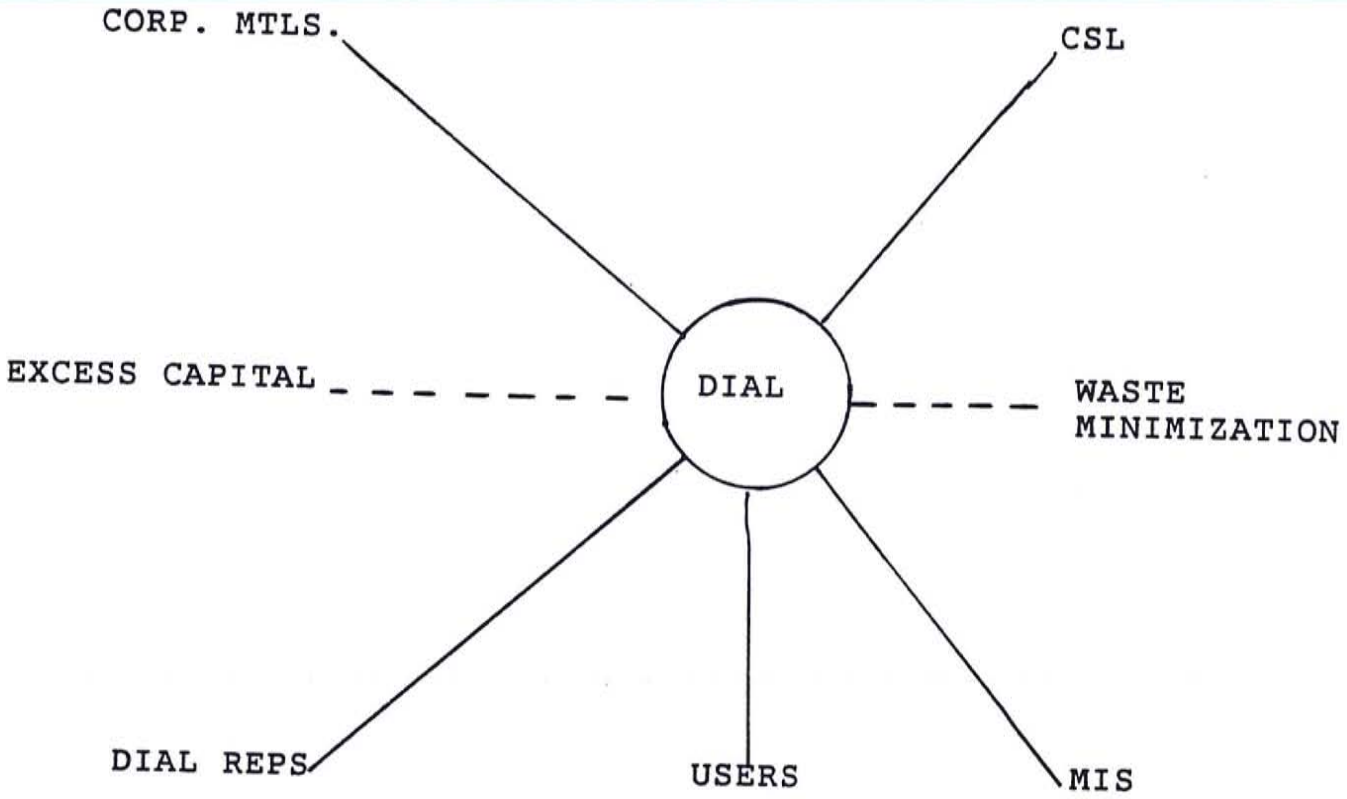
- CLOSED LOOP RECYCLING AT OUR PROCESSORS
- LAND FILL REDUCTION
- ASSIST OUR PARTNERS (PROCESSORS) IN DEVELOPING METHODS OF RECYCLING TO REDUCE OUR LABOR (VALUE ADDED)
- WORK WITH PDC TEAM TO:
  - ELIMINATE MARKING OF NON-PROPRIETARY COMPONENTS
  - PROMOTE ACQUISITION RESTOCKING TO ORIGINAL SUPPLIER
  - DEVELOP AND QUALIFY PROCESSORS TO REDUCE LABOR (VALUE ADDED) FOR SCRAP PROCESSING
  - ADDITIONAL PROCESSES FOR REUSE OF COMPONENTS VERSUS RECLAMATION

DIAL

DIGITAL IDLE ASSET LISTING

PAUL COUTE

SEPTEMBER 8, 1989


CORP. MTLS.
CSL
EXCESS CAPITAL
DIAL
WASTE
MINIMIZATION
DIAL REPS
USERS
MIS

Dial
Introduction - Overview

9-7-89

DIAL DIRECTORY

	DTN	NODE
Paul Coute	240-6398	FOOZLE::COUTE
Cathy Kennedy	240-6305	FOOZLE::KENNEDY
Shirley Kern	240-6329	FOOZLE::KERN
Dial Administration General	240-6330	

Paper Mail - AET 1-7

DIAL STATISTICS

USERS

COUNTRIES	31
LOCATIONS	480
USER ACCOUNTS	1900

DOLLARS

ADVERAGE LISTING VALUE	$200M
FY89 REDISTRIBUTED	$42M

MAJOR ACCOMPLISHMENT FY89

* CLOSE USA/EUROPE TIE

* SYSTEM ENHANCEMENTS

DIAL ON MRP. SHEETS

GOALS

* COMPLETE WORLDWIDE IMPLEMENTATION

* INCREASE CAPITAL ASSET LISTING

* INCREASE QUALITY OF DATA

LONG TERM GOALS

* DIAL 90

* USER FRIENDLY

D.I.A.L.

Project Initiation Document

submitted by:

Paul Coute
October, 1990

Inputs to this proposal were made by:

DIAL ADMINISTRATION:

Cathy Kennedy
Fred Sandler

NEW VENTURES:

Stan Keyes
Bob Parsons

WASTE MANAGEMENT:

Dave Weil

DEFINITION

Problem:

- The DIAL System is a "70s" designed, programmed system.

- The system is not user-friendly.

- Data access is difficult and time consuming.

- Since the original design, one major update to the data base design has been implemented.

- Left in the current state, the system will continue to be used as a "requirement" of policy in order to dispose of equipment.

- The initial focus users were the Materials and Materials Operations people.

- This group of people funded the maintenance of the system and the system interfaces now in place.

- Today, the current user and the most potential market for the DIAL System and services are the "Department or Cost Center Administrators" that will need an easy way to acquire equipment.

- The current system does not lend itself to the "non-technical" group of users in the Corporation.

Opportunity Statement:

DIAL is a viable tool to capture and increase the redistribution of the Corporation's non-inventory idle assets.

To become this tool, certain modifications must be made to the front-end interface of the system to make it...

a.) easy access to a wider range of employees.

b.) a user friendly interface without a requirement of a complex user manual.

c.) easier access methodology and alternate lookup capabilities not dependant solely on use of Digital part number.

Objective:

The objective of this proposal is to develop an inquiry only sub-system utilizing VTX, develop new methodologies to ease accessing the database and enhance the front-end process to the main DIAL System to increase the accuracy of the data.

DIAL SYSTEM UPDATE COST:

DEVELOP DIAL VTX SYSTEM	$50,000
ADD AUTO ANSWER BACK	$40,000
ADD DATA BASE LOOKUP (MERLIN - REVERSE BOM)	$50,000
ADD AUTOMATED UPDATE FROM INVENTORY	$50,000
UPDATE MAIN DIAL SYSTEM	$60,000
	$250,000

Assumptions:

- Returns/Trade-in type of equipment listings on DIAL will increase by ten percent each year for three years. All of this increase will be redistributed.

- There is estimated to be $100 million (net book value) of IEG type of equipment in "hallways", etc. available for redistribution not currently listed on DIAL. The plan assumes a ten percent penetration into this pool each year and all will be redistributed.

- The average year of life for DIAL equipment is end of Year Two.

- All incremental redistributed equipment will be direct reductions of IEG demand.

Risk Assessment:

Risk in this project is extremely low. Payback can be achieved by listing and redistributing about $85K (net book value) of office equipment on the enhanced DIAL System.

Attainability:

Given the current restrictions on IEG equipment purchase, these goals could be exceeded.

Benefits:

This is a corporate-wide system and the enhancements will be available to all Digital sites using VTX and/or the DIAL system.

Additionally, after the introduction and stabilization of the enhancements, a generic version of the system could be offered as software to our customers.

Investment Summary:

Total Cost Savings	$54.9M
Cash Flow	$89.1M
Investment	$250.0K
Payback First Qtr After Completion	
N.P.V. @20%	$54.8M

Funding:

Funding or programming resources is to be supported at the Corporate level

DIAL SOFTWARE ENHANCEMENT INVESTMENT ANALYSIS

	YEAR 1	YEAR 2	YEAR 3	TOTAL
INTERNAL EQUIPMENT SAVINGS @ COST:				
RETURNS/TRADE	$ 2,900	$ 3,200	$ 3,500	$,9,600
UNLISTED OFFICE EQUIPMENT	$29,400	$26,500	$23,800	$79,700
TOTAL EQUIPMENT SAVING	$32,300	$29,700	$27,300	$89,300
P & L SAVINGS:				
DEPRECIATION	$12,920	$19,632	$22,570	$55,122
INVESTMENT	$ 250	$ 0	$ 0	$ 250
PBT IMPACT	$12,670	$19,632	$22,570	$54,872
CASH FLOW	$32,050	$29,700	$27,300	$89,050
NPV @20%		$54,867		

DELIVERABLES

Timetable:

Based on the funding agreements, and an approved system specification, a detailed timetable will be established.

Resources are not available in Customer Services Logistics and will be contracted from other programming organizations within the corporation.

SCHEDULE OF SIGNIFICANT EVENTS:

1.)	Submit Project Initiation Document	October
2.)	Approval of Project Funding	November
3.)	Meeting of Board of Directors/Roles Defined	November
4.)	Identify Resources	November
5.)	Formalize Systems Specifications	December
6.)	Formalize Schedule	December
7.)	Board of Directors Meeting/Approval of Schedule	December
8.)	Approval of Systems Specifications	December
9.)	Programming Begins	January
10.)	System Implementation Plan Approved	January
11.)	System Training Material Development Begins	January
12.)	Implementation Team Meetings Begins	January
13.)	Implementation Begins	February

The Implementation Team will be formed with personnel appointed by the Board of Directors.

Proposed Board of Directors:

John Caufield
Paul Coute
Bob Good
John Sims
IEG
DECdirect
Customer Returns Group
U.S. Manufacturing
Europe
General International Area

The Board of Directors (BOD) will serve as an advisory group, have final approval for all stages of the project, and will insure adherence to the budget. The BOD will appoint the Implementation Team. Project Management will be provided by the DIAL Administration Group.

Description of items in programming effort:

1. Quality code changes to improve reflection of property condition.

2. Add option, model numbers to the record for cross reference.

3. Increase part number field to accommodate DEC-STD-012.

4. Capability to find type of item listed, i.e., furniture, manufacturing process equipment, VAXmate, etc.

5. Auto answerback to seller indicating need/want of equipment as in "mail answer feature".

6. Automate removal of selected material to "send" to the PDC or Teardown.

7. Integrate 190 (Interplant Shipment) transactions into DIAL material removal.

8. Utilize VTX as advertizing and access tool.

9. "Vanilla-ize" for vendor use (P.O. file)

10. Batch updating of Redistributed items.

Impact/Interdependencies:

- These enhancements should reduce the order activity to IEG for net new equipment orders.

- Anticipate increased activity due to cost controls and restrictions on ordering new equipment. User-friendly tool will increase productivity of users and increase amount of material redistributed.

Resource Requirements:

Programming will be done by contracting this service within the corporation. Consequently, no additional resources will be required.

HISTORY AND BACK-UP DATA :

	FY88		FY89		FY90	
	Adv.	Redis.	Adv.	Redis.	Adv.	Redis.
Capital	7.	.8	13.	1.6	36.	3.9
Expensed	8.	.8	16.	.3	31.	.7
DLO	6.	.0	6.	.4	2.	.0
Inventory	166.	26.4	161.	23.1	264.	16.5
Returns	-	-	2.	3.0	3.	10.1
Trade-In	-	-	2.	3.4	3.	11.7

Adv. = Average advertised over the 12 month period

Redis. = Net book value of items traded

$ = Millions

Systems Engineering/Content-Based Systems (CBS)
Corporate Information Services
VR06-2/B4

CBS Contact: Kristine Tomlinson
DTN: 273-5893
Customer Contact: Fred Sandler
DTN: 240-6320
7 May 1990

15 June 1990 2nd REVISION

16 July 1990 renewal

[redacted]

This proposal reflects requirements discussed on 23 January with Linn Kurkjian, Fred Sandler, Cathy Kennedy and Kristine Tomlinson and 14 February with Fred Sandler, Cathy Kennedy and Kristine Tomlinson.

Revisions have been added based on 10 and 14 May telephone conversations between Fred Sandler and Kristine Tomlinson.

The DIAL group would like to create a VTX version of the "Inquiry" section of their existing online DIAL system. The VTX system will allow users to browse without having to be registered with the existing system. A mail feature will allow potential buyers to send mail to sellers requesting an item, the quantity, etc. The VTX version will not replace the existing system as an assets listing registration tool.

Create a VTX system containing all current inquiry function information and additional mail function.

- User interface evaluation and screen design
- Screen design prototype
- Recommendations from User Interface Evaluation
- ELK VTX software programming and development (interface to existing DBMS database)
- Buyer to seller mail feature
- "How to use DIAL VTX application" online guide
- "How to use VTX" online guide
- Feedback software
- Documentation
- ELK, Mail and Feedback software support training
- Project Management

[redacted]

Ninety percent of the users of the current DIAL system are browsers/shoppers. By putting the "Inquiry" function on VTX, the DIAL personnel will no longer have to set up accounts to allow those users access.

Searching currently is available by Reference number (single entry) or by any combination of DEC part number, contact's badge number, location, and/or material type (multi-entry).

Users currently use the telephone to contact sellers regarding items listed in DIAL. This can result in long time delays.

A mail feature, allowing buyers to send sellers electronic mail from VTX regarding an item will be added. It will include at minimum: the Reference number, quantity desired, seller's E-Mail address, buyer's name and mail information. The DIAL office will create and maintain a file linking seller contact information and their mail address since this information does not exist in the current database.

o User interface evaluation and screen design

o Screen design prototype

o Recommendations from User Interface Evaluation

o ELK VTX software programming and development (interface to existing DBMS database)

o Buyer to seller mail feature

o "How to use DIAL VTX application" online guide

o "How to use VTX" online guide

o Feedback software

o Documentation

o ELK, Mail and Feedback software support training

o Project Management

o Phase 1 will be implemented at AET (Andover) in the US. The DIAL office will handle the Netherlands/European installation.

o The VTX version will not replace the existing COBOL and DBMS systems.

o Good retrieval speed will be a priority in implementation.

o DIAL Office will provide someone to maintain the application after installation (e.g., bring VTX server up and down as needed, provide minimal VTX page maintenance, perform code maintenance beyond contracted bug fix period).

o It is critical that appropriate resources be identified and available from customer's group.

o The VTX application will only duplicate the Inquiry function. With the exception of the mail function, it will not add functionality.

o The existing system allows multiple access points to some data. Attempts will be made to duplicate this functionality as closely as possible, subject to the user needs evaluation and any limitations imposed by the VTX software.

o The DIAL office cannot provide a programming resource.

o Since the ELK will retrieve data from the DBMS databases directly, the VTX version will be as up-to-date as the databases.

o Site support will be available both in the US and in Europe and should be identified before the start of the project.

o Site support will be involved in the project development.

o The DIAL office will provide CBS with a list of users for the user interface evaluation.

o CBS will be provided with the latest version of the DIAL COBOL code before the start of the project.

o The existing database schema will be "frozen". If any changes are made to it, additional analysis and project costs may result.

o The DIAL office will maintain the file of seller's E-Mail addresses.

o The DIAL Office will provide someone to maintain the application after installation.

♠

o US resource(s)—Fred Sandler, Cathy Kennedy, others as identified.

o European resource—Sjany De Ruyter.

o One/two CBS programmers - 4 months (full time).

o One CBS user interface designer - 1 month (full time).

o US Site IS resource - as needed (about 2 hours).

o European Site IS resource - as needed.

o DIAL Office will provide someone to maintain the application after installation.

nw

o CPU and disks required by application.

o Enough disk space to support 30,000 block database and infobase and software.

dw

o VTX installed at the US site.

o Any other software identified.

tr

o May need occassional consultations with DBA (estimate about 2 hours). To be arranged by Fred Sandler.

[redacted]

The costs below are estimates. It is Systems Engineering policy to charge for actual hours expended.

User interface 1. user needs assessment/analysis 2. screen design, demo and review 3. user interface evaluation 4. ongoing screen reviews/revisions	$13,715
ELK interface to existing DBMS database 1. ELK VTX code 2. VMS Instal Kit for US and Europe 3. Code Documentation	$52,520
Mail feature	$20,800
Training - 1 day	$520
Project management	$6,310
TOTAL:	$93,865

[redacted]

Acceptance of this proposal should be made in the form of a VAXmail to CPDW::TOMLINSON by 24 August 1990.

Once the proposal has been accepted, Systems Engineering will forward a contract and schedule the work.

If you have any questions, please contact Kristine Tomlinson, Corporate Information Services/Systems Engineering DTN: 273-5893.

Q2 FY92 WASTE MANAGEMENT/RECYCLING ACTIVITY REPORT

Management of solid waste is an important issue at Digital; throughout the years many people have done outstanding work in the area of waste reduction and recycling, these pioneering efforts are currently being validated by the numerous sites following the lead. This matrix is a snapshot summary of the waste management efforts currently implemented within Digital U.S.. It is intended to provide visibility to this valuable information for the purpose of promoting conservation and environmentally considerate practices at every Digital site.

In early 1990, Digital reaffirmed its commitment to the environment by creating a set of environmental principles focussed on conservation and protecting the health and safety of its employees, customers and community; these operating principles are known as "Earth Vision". Shortly after this reaffirmation, Corporate Waste Management proposed a goal to cut Digital waste disposal volumes world-wide in half by 1995, that's a 50% reduction from the estimated 125 million pounds of waste disposed of in 1989. Proportionally, most of the volume is considered to be facilities waste; 75 million pounds world-wide, therefore, most of the "back-end" burden falls upon employees and facilities management to do the "right thing".

While this is todays back-end reality, the front-end must become more involved; Product and Packaging Designers need to design for the environment and design for re-use and recyclability with a recycled content. Purchasing needs to require and buy recycled and recyclable materials and products to close the recycling loop - markets will dry up at the backend if the front-end isn't focussed. We all have a part and must take personal responsibility, landfills are closing, states are refusing to take outsiders garbage and the next incinerator could be proposed for your neighborhood.

In March of 1991 Digital accepted the challenge of the Coalition of Northeastern Governors to reduce packaging waste and proposed a reduction goal of 20% by 1993. There are considerable opportunities in this area both inbound and outbound, there are many internal resources and a history of success stories, so while this may be an aggressive goal it is achievable. Great examples can be found at ASO and CXO, over the past few years they have made tremendous progress in the area of reduced packaging.

Also, a Basic Order Agreement was signed in October 1991 with URACO, a National Supplier to provide recycled copier and computer paper to Digital, now sites have a choice when ordering paper! The BOA contract number is 10051 and covers both virgin and recycled papers.

Recently, you may have noticed the "Benefits at Digital" bulletins were printed on recycled paper - this is a major publication distributed to every employee. This is another great example of the paradigm switch to environmental conservation that is taking place throughout this corporation.

Headquarters Administration Property Management (HAPM), consisting of the larger Digital cluster buildings in Massachusetts and New Hampshire, has taken solid waste management seriously and recycled 1843 tons of solid waste (primarily through office paper recycling efforts) in FY91. This represents a 35% avoidance from their FY90 volumes and $ 206K cost savings for Digital. The fact that this amount of waste was diverted from landfilling to recycling saved 6,084 cubic yards of landfill space.

The following statistics are extracted from the data supplied in the attached matrix:

100% of US Mfg. and HAPM sites are collecting white paper

42% of US Mfg. and 50% of HAPM sites are collecting mixed paper

33% of US Mfg. and 8% of HAPM sites are collecting Newspapers

45% of US Mfg. and 83% of HAPM sites have implemented varying degrees of cafeteria source reduction and recycling programs.

21% of US Mfg. and 50% of HAPM sites have implemented internal re-use programs for office supplies. (3 ring binders, folders, staplers etc.)

71% of US Mfg. sites recycle corrugated

The major waste streams currently being recycled/re-used by the Field sites are white papers and office supplies.

Updates/corrections from the August, Q1 FY92 matrix are as follows; LJO, BTO, GSO, HLO, MLO, LMO, MET, MKO, MOO, MRO, MSO, NRO, TAY,UPO, PKO, and ZKO have been updated. The majority of updates were in the area of upgrading (white) paper recycling programs to included mixed/colored office paper and implementing re-use programs for office supplies. HLO has recently formed a waste management committee named HEART -- Hudson Environmental Awareness and Recycling team, GSO also formalized a site committee. Some Field sites wanted to stand up and be counted for all the good work they are doing and have now been included in this report.

If you wish to be removed from this reports distribution please contact me. And if you find this report useful, share it with others. Please send us your comments and suggestions. Thank you.

AREA CONTACTS: Deborah Grahn @BXC for U.S.M
Doug Shaw @UPO for H.A.P.M
Jacque Knight @ALF for Southern States

Q2 FY92

WASTE MINIMIZATION/RECYCLING ACTIVITIES

U.S. Manufacturing & Hdqtrs. Area Property Mgmt.

FACILITY Contact Phone	WHITE OFFICE PAPER	NEWSPAPER	MIXED PAPER	CORRUGATED	PALLETS	POLYSTYRENE	OTHER PLASTICS	BEVERAGE CONTAINERS	METALS	GLASS	OTHER		
X recycling operational M recycling minimal I Investigating key cont. last pg.													
ABO, ALBUQUERQUE, NM**	X	X	X	X	X	h	a	X	b		c		
Lisa Jennings 552-2439													
ACO, ACTON, MA	X												
Len Briggs, 232-2500													
APO, ANDOVER, MA**	X	X	X	X		I	M	X	X	X	g		
Brian Blake 289-1186													
ASO, AUGUSTA, ME	X			X	X		a						
Jake Magee 271-6520													
BOO, BOSTON, MA	M			X	X								
Bob Castano 281-5723													
BTO, BURLINGTON, VT	X	X	X	X	X	r	a,p	X	X	I	j,k,l		
Ken Stratton 266-4419							s						
BXB, BOXBORO, MA	X		X			X,I		X		X			
John Mastroianni 227-3578													
BXC, BOXBORO, MA	X					h		X					
Judy MacDonald 229-7500													
BYO, BOYLSTON, MA	X					X							
Peter Sharon 234-4691													
DSG, WESTFORD, MA	X					X							
CTC, CHELMSFORD, MA	X					X		X					
CTS, CHELMSFORD, MA	X					X		X					
Ron Spiewak 235-8017													

CXF, COLORADO SPRINGS	X	X	X	X	X	I	X	I	X		n,o
CXN, COLORADO SPRINGS	X	X	X	X	X	I	X	I	b		n,o
CXO, COLORADO SPRINGS**	X	X	X	X	X	I	X	I	b		n,o
Jim Doak											
522-2793											
CXO3 COLORADO SPRINGS	X	X		X	X	I		I	X		
Ray Monacelli											
592-5206											
DLB, MARLBORO, MA	X		X			X,h				g	
Mike Menchion											
291-8200											
DOO, CONTOOCOOK, NH	X			X	X	h	f	X	X	I	
Daniel Dudley											
267-2209											
FXO, FRANKLIN, MA	X		X	X	X			X			
Nancy Nordberg											
228-5551											
GSO, GREENVILLE, SC**	X		X		X			X	X		q
Phil Lawrence											
354-6276											
HLO, HUDSON, MA**	X	I		X		X	t,e	X	b	I	g,u
Ilya Olshan											
225-5559											
LJO, LITTLETON, MA	X										
Fred Kilmartin											
226-2900											
LKG, LITTLETON, MA	X					X,h				g	
Steve Swift											
226-7406											
LMO, MARLBORO, MA	X		X							g	
MET, MARLBORO, MA	X		X			h				g	
MOO, MARLBORO, MA	X		X					X			
UPO, MARLBORO, MA	X		X			h				g	
Janice Murphy-Shaw											
296-4314											
LTN, LITTLETON, MA	X		X			X,I		X		X	
John Mastroianni											
227-3598											
MKO, MERRIMACK, NH	X			M	M	h		X			g
Frank Kalwell											
264-5600											
MLO, MAYNARD, MA	X		X	p	p			X			g
Al Legere											
223-0951											
MRO, MARLBORO, MA	X				X	h					g
Jim Marlow											
297-6487											
MSO, MAYNARD, MA	X		X			h					
Pete Dicicco											
223-7380											

NIO, SALEM, NH	X	X	X	X	X						
Jennifer Van de Car											
285-3501											
NKS, MARLBORO,MA	X										
Wayne Timura											
237-3952											
NQO, NASHUA, N.H.											
Bill Gagne	X			X	X			X			
264-6315											
NRO, NORTHBORO, MA	X		X	X	X	X,h		X			g
Tracy Farber											
234-4681											
OGO, STOW, MA.	X					X,h		X			g
Tony Fernandes											
276-9010											
PKO, MAYNARD, MA	X	X	X		M			X			g
Art Demars											
223-5967											
PNO, PHOENIX, AZ	X		X	X	X	I	f	X	X	I	
Don Essley											
551-5255											
SHR, SHREWSBURY, MA	X				I		I				
Wayne Timura											
237-3952											
SPO, SPRINGFIELD, MA	X			X	X						
Tim Moulton											
243-2841											
TAY, LITTLETON, MA	X					X		X			g
John Mastroianni											
227-3578											
TFO, TEMPE, AZ	X		X	I	I	I	e	X	X		
Alan Abbott											
566-5632											
TWO, TEWKSBURY, MA	X										
Brian Kimball											
247-2343											
UCF, CUPERTINO, CA	Recyclables recovery managed by waste hauler										
Nancy Immekeppel											
529-6150											
WFO, WESTFIELD, MA	X			X	X	I			X		
Wayne Konrad											
242-2225											
WMO, WESTMINSTER, MA**	X			X	X	X,h					d
Sandy Bardsley											
241-3884											
ZKO, NASHUA, NH	X	X		X	X	I		I			j
Andy Demers											
381-1233											

WASTE MINIMIZATION/RECYCLING ACTIVITIES
FIELD OFFICES

FACILITY Contact Phone X recycling operational M recycling minimal I Investigating key cont. last pg.	WHITE OFFICE PAPER NEWSPAPER MIXED PAPER CORRUGATED PALLETS POLYSTYRENE OTHER PLASTICS BEVERAGE CONTAINERS METALS GLASS OTHER	
DELAWARE DISTRICT --- Mary Ellen Volpa @DWO -- DTN 338-5602		
DWO New Castle, DE	X X	g,j
CHO Cherry Hill, NJ	X X	g,j
EJO Cherry Hill, NJ	X X	g,j
LYF Piscataway	X X X X X	g,j,k
Sally Strasko		
332-4262		
MIDSOUTH DISTRICT ---- Tom Ballentine @MMO -- DTN 367-6714		
MMO Memphis, TN	X X	g,j,o
NVO Nashville, TN	X X	g,j,o
KXO Knoxville, TN	X X	g,j,o
NOO New Orleans, LA	X X	g,j,o
LRO Little Rock, AR	M	g,j,o
JMO Jackson, MS	M	g,j,o
TNK Kingsport, TN	M	g,j,o
CHT Chattanooga, TN	M	g,j,o
VPO Shreveport, LA	M	g,j,o
RUO Baton Rouge, LA	M	g,j,o
CAROLINA DISTRICT ---- Bernie Hunsucker @CEO -- DTN 367-5373		
CEO Charlotte, NC	X	g,j
CBO Columbia, SC	X X	g,j
RTP Reserch Tri Pk, NC	I I	g,j
GNO Greenville, SC	X	g,j
WKO Winston Salem, NC	X	g,j
WLM Wilmington, NC		g,j
CHA Charleston, SC		g,j
OPA Charlotte ACES	X X	g,j
ATLANTA CLUSTER ------ Jack Fleisher @ALF -- DTN-385-2961		
ALF - Alpharetta, GA	X X X	g,j,l
GOVERNMENT DISTRICT -- Deborah Johnson @DCO -- DTN-341-2875		
COL Columbia, MD		
DCA Landover, MD		
DWS Washington I ST	X X	j
DER Lanham, MD	X	j
VBV Virginia Beach, VA		j
WNP Washington, DC	X X	

cont. key

** - Sites have established Recycling/Waste Management teams
a - recycling PVC IC tubes
b - recycling/reclaiming site/process specific metals
c - re-using conductive/non-conductive bags in-house
d - recycling dry cell batteries
e - recycling plastic chemical containers
f - recycling marketable plastic products ie: enclosures
g - re-using office supplies, Dbl. sided copying at copy centers
h - cafe waste through source reduction - durables vs disposables
j - re-using 3 ring binders
k - recycling tin cans
l - recycling Nynex telephone books
n - re-inking/re-using printer ribbons
o - 3 R's of packaging
p - re-using specific commodity in-house ie:plastic bubble wrap,pallets..
q - recycling/reclaiming hazardous or regulated waste ie: solvents
r - polystyrene foam peanuts
s - recycling disposable gloves
t - recycling wafer carriers
u - equipment salvage/re-use

Rev. 2.0 11/19/91
D.Shaw/D.Grahn

INTERNAL USE ONLY

Distribution:

TO: DOUG SHAW @UPO
TO: PAUL COUTE @MSO
TO: JOHN CAULFIELD @GNO
TO: JUDY ZAPPALA @MSO
TO: DAVE WEIL @MSO

CC: DICK MALONEY @LKG

INTEROFFICE MEMORANDUM

Doc. No: 009932
Date: 26-Nov-1991 05:14pm EST
From: DEBORAH GRAHN @BXC
GRAHN.DEBORAH AT A1 at ISLNDS at BXC
Dept: U.S. Waste Management
Tel No: 229-7769

TO: See Below

Subject: Q2 FY92 Waste Minimization Report

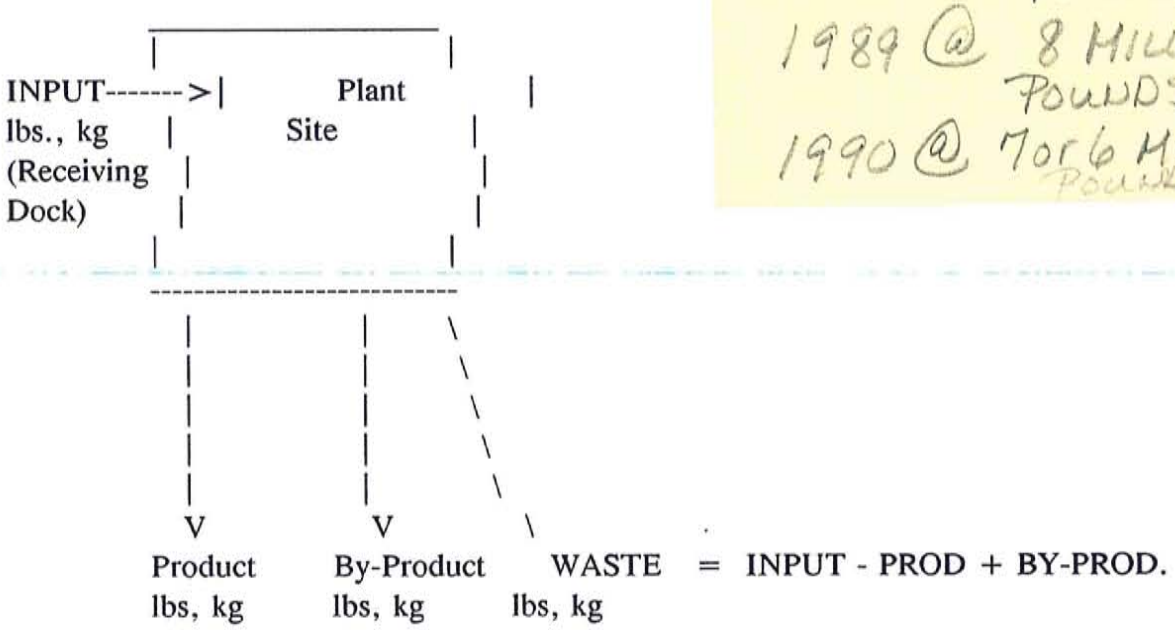
HAZARDOUS WASTE FROM U.S. MFG. FACILITIES:

1988 @ 10 MILLION POUNDS

1989 @ 8 MILLION POUNDS

1990 @ 7 or 6 MILLION POUNDS

Proposed Standard Measurement for Waste



Input - Materials/Equipment that are purchased for use by the plant/site in order to manufacture product or operate facility.

Product - Materials/Equipment for which the plant is chartered to manufacture for sale to customers (internal or external). Positive revenue to Digital.

By-Product - Materials/Equipment which are a result of the manufacture of the product or facility operation, and are beneficially re-used, recycled, or reclaimed. Positive revenue to Digital.

Waste - Materials/Equipment which is a result of the manufacture of the product or facility operation that is disposed, land-filled, treated, incinerated, etc. Negative cost to Digital.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 007012
Date: 16-Nov-1990 03:49pm EST
From: CARY GHERMAN
GHERMAN.CARY AT A1 at ICS at PKO
Dept: Environmental Health & Safety
Tel No: DTN 251-1229

TO: See Below

Subject: WASTE PROFILE MEETING MINUTES - 11/8

Attendees: Deb Grahn Joe Collentro
Larry Nielsen Peter Hunter

The meeting for the Waste Profile Project began with a review of activities to date.

We then reviewed the PID and modified the goals. (see below)

A discussion followed which focused on measurement techniques and criteria. Deb Grahn is collecting waste data from US MEM sites. Collected data to be reviewed at the next meeting.

The subject turned to waste stream management, policy and goals. A matrix was developed that would categorize each waste stream. The categories are:

HAZARDOUS
PROPRIETARY
RECOVERABLE
NON-RECOVERABLE

Each category would be defined and policy written for each. Goals would then be set for each waste stream and implementation strategies set by the areas.

EXAMPLE:

WASTE STREAM MANAGEMENT

WASTE STREAM	DEFINITION	POLICY	GOAL	AREA STRATEGY

CRT'S	HAZ/RECOV RECLAIM/RECOV	NO LANDFILL	100%/5 YEARS EUR - 1992 GIA - SEND TO US	US - 1991
PAPER	RECOVERABLE	RECYCLE	80%/2 YEARS EUR - 1991	US - 1991

GIA - 1993

SLUDGE	HAZ/RECOV	RECLAIM/ ELIMINATE	100%/1 YEAR 5 YEARS - 1995 (ELIMINATE)	US - 1992 (RECLAIM) EUR/GIA - N/A

(NOTE: THESE ARE ONLY EXAMPLES)

ACTION ITEMS:

Cary to begin definitions/policies for waste categories

Peter Hunter/Joe Collentro to begin scope of supplier profile

Deb Grahn to continue data collection for US MEM

Cary to obtain list of 45 major sites

NEXT MEETING: 11/28 10 - 12 CFO2

The latest version of the PID is attached. I welcome your comments.

If you would like to attend future meetings, please let me know.

cary

Distribution:

TO: LARRY NIELSEN @MLO
TO: RICH MYSAK @OGO
TO: DOUG SHAW @MRO
TO: DEB GRAHN @WJO
TO: PETER HUNTER @VRO

CC: CHUCK MCGRAIL @DAS
CC: LAURA GOLDIN @MSO
CC: PETER HUNTER @CFO

CC: LOU WELCOME (WELCOME.LOU AT A1 at ICS at PKO)
CC: RICHARD PORTER (PORTER.RICHARD AT A1 at ICS at PKO)

Use the RDL option to see remainder of distribution lists.

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT 11/15/90

PROJECT INITIATION DOCUMENT

WASTE PROFILE

EXECUTIVE SUMMARY:

Millions of pounds of Digital waste materials are disposed of annually. We also use hundreds of vendors to transport, dispose, and recycle these waste materials. The Strategic Waste Management Group has been chartered to reduce the volume, risk, and cost of wastes. Corporate and Area EHS ensures that wastes are managed in compliance with all laws and good practice. Accordingly, this program will set specific goals for waste reduction, measure the reduction, and establish guidelines for the proper management of all waste streams:

(This goal must be in conjuction with the overall Corporate goal of 50% reduction in waste (COST OR WEIGHT OR VOLUME?) in five years.)

- o facility waste
  - paper
  - plastic
  - construction
  - rubbish
  - packaging
  - cafeteria
- o air emissions
- o water emissions
- o process waste
  - hazardous
  - non-hazardous
- o excess inventory
  - components
  - materials

The project can been segregated into three parts:

1. Vendor Identification
2. Goal Setting & Measurement
3. Future Strategy

DEFINITION:

The waste profile project will establish a standard means of measuring wastes produced, wastes reduced, and how Digital's wastes are managed world-wide. On a world-wide basis, Digital disposes of millions of pounds of waste every year. We also use hundreds of vendors to transport, land-fill, incinerate, treat, recycle, store, disassemble, crush, and shred these waste materials.

The Waste Profile project will set goals, establish the means to measure compliance with the goals and ensure wastes are managed in compliance with all laws and good practice.

BENEFITS:

1. Provides a means to measure the effectiveness of waste reduction programs. (feedback loop)

2. Measures the performance of Digital in meeting established waste reduction goals.

3. Provides accurate tracking and proper management of wastes which will result in reduced costs, long-term liabilities, environmental impact, and increased productivity and competitiveness.

4. Allows for quantitative bench-marking of waste management programs.

5. Reduced costs from improved supplier management.

CORPORATE GOALS:

1. Define Waste Streams by category, ie Hazardous, Recoverable Proprietary, Non-recoverable.
2. Establish Digital policy by waste category.
3. Establish a process by which Area Management identify and approve waste management vendors.
4. Establish process for standard means of waste measurement.
5. Develop 5 year worldwide disposal goals.
6. Establish Corporate waste stream reduction goals.
7. Ensure areas implement strategy and meet corporate goals.

SCOPE: 45 Major Sites - world-wide

DELIVERABLES:

- o Write Project Initiation Document Q1 FY91
- o Obtain commitment to measurement of waste. Q2 FY91
- o Begin waste data collection Q2 FY91
- o Standard measurement established (Waste Ratio) by area or waste stream. Q3 FY91
- o Supplier list for US completed Q3 FY91
  - Europe, GIA in progress
- o Waste measurement criteria defined Q4 FY91
- o Goals for waste stream reduction set Q4 FY91
- o Current vendor list by country completed Q1 FY92
- o Waste Stream Management Plan developed Q2 FY92
- o Waste measurement data collected Q3 FY92
  site/plant ----> area -----> Corporate

- Measurement against goals/annual report Q4 FY92

SUPPORT PLAN:

- o Areas commitment to waste measurement.
- o Areas develop plan to achieve measurement.
- o Areas participation in goal/criteria setting.
- o Area/country purchasing support.
- o Area/Plant/Site resources available to support plan.

DEVELOPMENT PLAN:

- o Learn what others are doing in this area
- o Research latest measurement techniques
- o Understand existing measurements in Digital
- o Understand regulatory requirements/trends across geographies

COST/BENEFIT
ANALYSIS:

An ROI has not been completed on this project, although it is expected to be favorable. A brief analysis of the elements to be considered in the ROI is:

1. Cost avoidance opportunities through more efficient management of waste vendors. It is estimated that we use hundreds of waste vendors, each with different contracts for similar services. Consolidation of vendors and consistent contracts will lower disposal costs and liability.

2. Establishing goals for waste reduction will give businesses the push to reduce waste thereby reduce costs and increase productivity.

3. Measuring wastes will allow businesses to understand where

they stand in relation to established goals and create a further incentive to reduce wastes and lower costs.

4. Measurement, goals setting, and vendor management will ensure compliance with laws and lower potential liability.

5. Waste stream strategic management will set out a plan for moving from disposal to recycling and reduction, thereby reducing disposal costs and increasing potential revenues

from waste streams.

PROJECT PROPOSAL

PROJECT: 1990 Waste Management Report

OBJECTIVE: To provide a summary of the company's waste reduction programs and activities.

AUDIENCE: Potential investors/current investors; media (print and broadcast); local, state, Federal government regulatory agencies; customers/potential customers; environmental groups; community groups.

RATIONALE: Concerns/questions about Digital's waste policies, practices and programs have increased dramatically over the past year. These inquiries have come from a variety of sources, including investor groups, environmental groups, the media, government agencies and customers. The circulation of inconsistent or inaccurate information about these programs can put the corporation at risk. Given the volatility of these issues, it is strongly recommended that a singular piece (i.e. waste management report) be developed that would provide consistent, accurate information about Digital's waste programs. The report could be used as a factual piece that would address all the above identified audiences.

PROPOSED FORMAT: The report would be divided into three sections:

- Introduction (Vision, Purpose, Overview Goals)
- Program Descriptions (Problem, Solution, Results)
- Future Plans (Next Steps)

(complete, detailed format outline available)

TIMETABLE: By the week of October 22, an edited version of the document will be circulated for a final review. Final copy from this review is due October 29; after which the typesetting/ mechanical phase will be activated; and the finished piece available by January 15, 1991.

RUNSIZE/ COST: 30,000 copies @45K

PROJECT PROPOSAL

PROJECT: 1990 Waste Management Report

OBJECTIVE: To provide a summary of the company's waste reduction programs and activities.

AUDIENCE: Potential investors/current investors; media (print and broadcast); local, state, Federal government regulatory agencies; customers/potential customers; environmental groups; community groups.

RATIONALE: Concerns/questions about Digital's waste policies, practices and programs have increased dramatically over the past year. These inquiries have come from a variety of sources, including investor groups, environmental groups, the media, government agencies and customers. The circulation of inconsistent or inaccurate information about these programs can put the corporation at risk. Given the volatility of these issues, it is strongly recommended that a singular piece (i.e. waste management report) be developed that would provide consistent, accurate information about Digital's waste programs. The report could be used as a factual piece that would address all the above identified audiences.

PROPOSED FORMAT: The report would be divided into three sections:

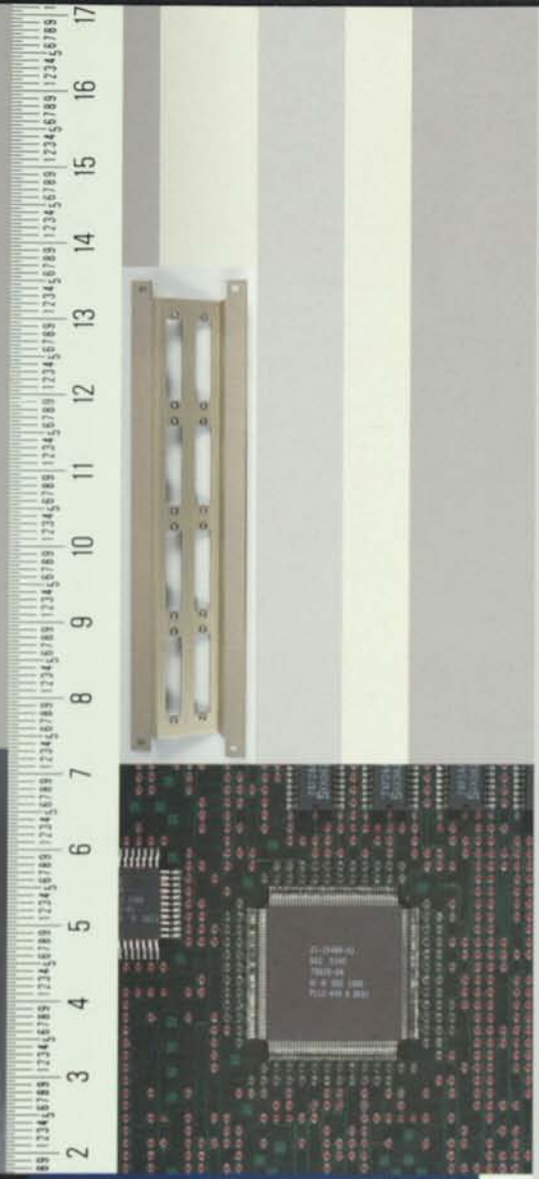
- Introduction (Vision, Purpose, Overview Goals)
- Program Descriptions (Problem, Solution, Results)
- Future Plans (Next Steps)

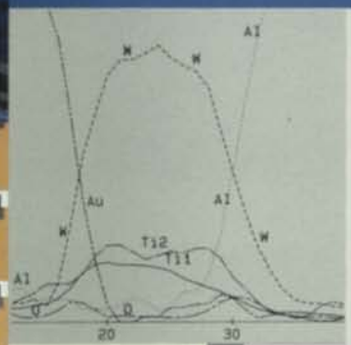
(complete, detailed format outline available)

TIMETABLE: By the week of October 22, an edited version of the document will be circulated for a final review. Final copy from this review is due October 29; after which the typesetting/ mechanical phase will be activated; and the finished piece available by January 15, 1991.

RUNSIZE/ COST: 30,000 copies @45K

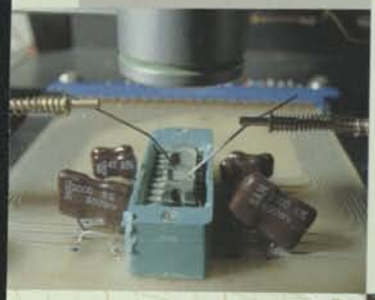
digital

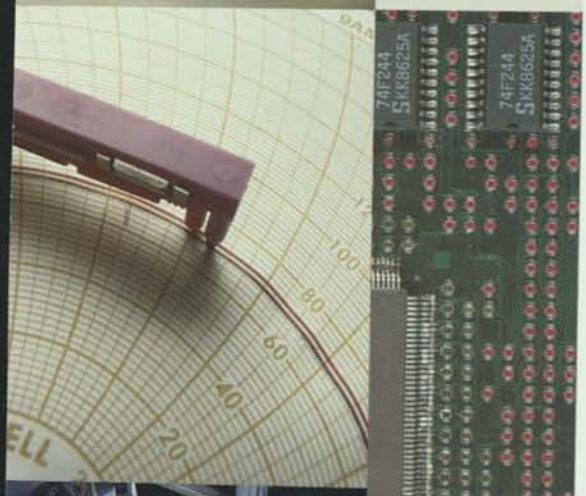




NPO

New Product Operations





Component Service

- IC Applications Engineering
- Value Engineering
- Component Project Management
- New Part Sourcing
- Material Support
- Producibility
- Component Engineering
  - —Incoming Inspection Procedure
  - —Qualification Testing
  - —Purchase Specification

Prototype Services

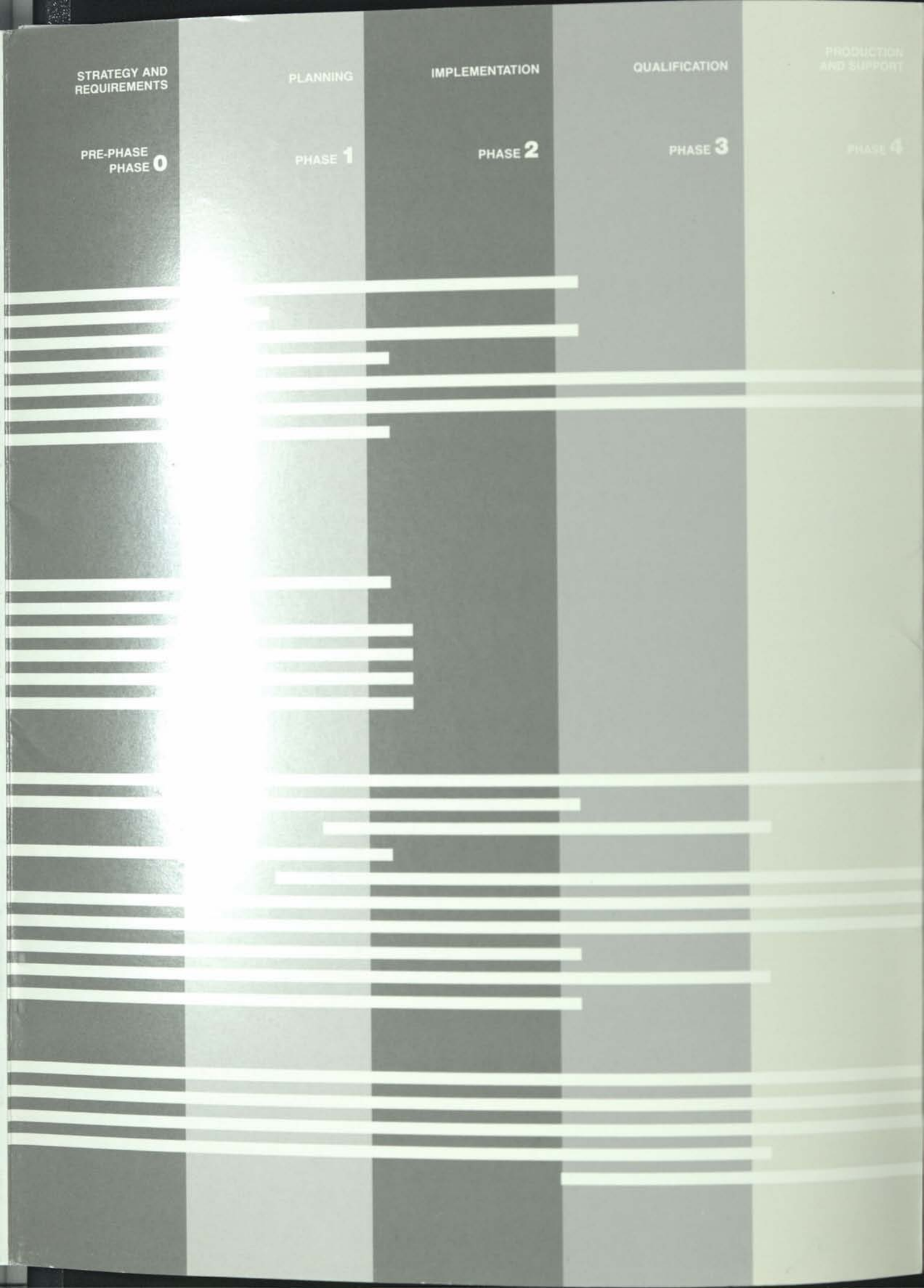
- Prototype Workstations, Personal Computers, and Microsystems
- Engineering Modules and Subassemblies
- Mechanical Models and Assemblies
- Prom Programming
- Finishing
- Engineering Stockroom

Module Services

- Module Build
- Software Tool Generation
- Test Program Development
- Testability
- Dedicated QV and Burn-In
- Producibility
- Cable Fabrication
- IC Programming
- Material Support/BOM Development
- Tooling/Fixturing

Systems Services

- Seed Programs for Workstations, Personal Computers, and MicroSystems
- Low-end Products for Vertical Markets
- Quality Engineering
- Material Support
- Pre-Qualified Volume Manufacturing Second Source


STRATEGY AND REQUIREMENTS
PLANNING
IMPLEMENTATION
QUALIFICATION
PRODUCTION AND SUPPORT
PRE-PHASE PHASE 0
PHASE 1
PHASE 2
PHASE 3
PHASE 4

An NPO Overview: time to market is our only product

General Service Features:

- Easy to do business with—"One Stop Shopping"
- Unique combination of manufacturing and engineering services
- Reliable, quality service offerings
- Customer satisfaction—our priority
- "Puts the effort where the expertise is"
- Full-range service offerings, spanning the New Product Development Cycle
  - —Complements both Engineering and Manufacturing requirements
  - —Commitment to Corporate Cost Efficiencies
- Smooth transition to Volume Manufacturing
- Pre-qualified second source subcontractor

digital

It would be difficult to duplicate, in an outside resource, the experience, loyalty and commitment to Digital which is demonstrated by the NPO organization.

You have only to walk through NPO Headquarters at the Mill in Maynard, Massachusetts, to feel the heartbeat of Digital Equipment Corporation. This unique team of dedicated NPO professionals has an overall employment average of 15 years with Digital. As the Company has grown, the new NPO Organization has evolved and developed personnel, organizations, and services to accommodate Digital's growing needs, and the demands of our competitive industry.

NPO is an organization which melds the skills of many talented individuals into a seamless operation which has ONE goal: to get your product out to volume manufacturing, and into the marketplace in the shortest possible time.

Because NPO is a Corporate resource for both Manufacturing and Engineering, we have developed a unique combination of services to accommodate the full scope of the New Product Development Cycle. The result is a well-managed project, for you and Digital—adjusted for responsiveness and flexibility within the Design Cycle, with the goal of smooth transition into Volume Production.

NPO Project Managers will be here to work with you to provide expert assistance from pilot and proto stages through seed builds. And, should customer demand exceed primary manufacturing sites' capacity to supply, NPO is your pre-qualified, second source subcontractor—prepared to assist with manufacturing shortfall.

Because time means money and competition is intense, you need responsive resources to get your project out to the marketplace in a timely manner. You can turn to NPO with the assurance of quality, commitment, and dedication to work with you—to beat the competition.

NPO New Product Operations Maynard, MA. MLO5-4/P54 223-3874

Professional project management for complex product requirements

A team of professionals who take complete responsibility for the completion of complex products and projects, thereby, providing "One Stop" shopping to our customers

Service Features:

- Seed Programs for work stations, personal computers and Micro Systems
  - —Management
  - —Manufacturing
  - —Testing
- Manage the supply of Low-end products for vertical markets
- Quality Engineering
- Material Support
  - —Product Costing
  - —BOM Development
- Pre-Qualified Volume Manufacturing 2nd Source
  - —Low-volume system assembly
  - —In-house product test builds
  - —Low-volume Vertical Markets builds

NPO Program Management services are representative of our intimate involvement in major Corporate Product Programs. Our project management services support all aspects of the design and development processes, including mechanical and electrical assembly, component engineering, sourcing, testing and esthetics.

From prototype through revenue-shipable stages of the New Product Development Cycle, our skilled personnel will be involved to assist both Engineering and Manufacturing with a number of competitive services. For transition into Volume Manufacturing, our NPO Project Management service provides a valuable buffer from non-product manufacturing requirements and producibility problems. Manufacturing resources are evaluated and managed to meet product requirements in the areas of cost, quality and delivery. Additionally, integrated manufacturing plans can be developed to support multiple plant sourcing, inventory goals and product schedules.

digital

NPO New Product Operations Maynard, MA. MLO5-4/P54 223-3874

A unique combination of new product design, support, and production services

New Product production and design services combine all the expertise that is necessary to meet the high standards for qualified Digital modules. From bare-board to burn-in, all requirements that revolve around test, build and modification of modules can be addressed within these Service Groups.

Service Features:

- Module Build (including Surface Mount Technology)
- Software Tool Generation
- Test Program Development
  - —Teradyne L200
  - —Fairchild FF303
  - —GenRad Testers
- Testability
- Dedicated QV and Burn-in
- Producibility
- Cable Fabrication
- IC Programming
- Material Support/BOM Development
- Tooling/Fixturing

NPO technicians can provide complete module assembly and fabrication for all Engineering prototype and development needs. Standard service offerings include one day turn-around for all first piece proto modules with thru-hole or Surface Mount Devices. Additionally, we offer two day service on first piece proto

module units which may require mixed technologies.

At board and module level, our quality control checks and testing processes begin during product design, and culminate when the test systems and programs are actually installed in manufacturing sites. Software-based programs for manufacturing include tools to assist in the fabrication of modules and test fixtures.

Our Project Managers' review and recommendations keep Engineering informed as to product testability. Automated test packages for both in-circuit and functional module testers can also be provided for manufacturing sites. With full CAD/CAM services available through the Engineering net, our personnel can also assist you in both the design and product feasibility aspects of your new product.

digital

NPO New Product Operations Maynard, MA. MLO5-4/P54 223-3874

Prototype Services

The expertise to turn an engineer's idea into product reality

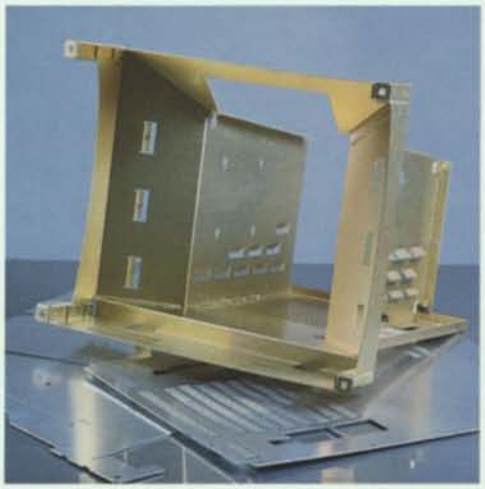
With limited documentation, the experienced personnel who execute Electrical and Mechanical Prototype services will act as consultant in the fabrication of Models, Modules, Systems, and Accessory Components. Quick turn-around for all first-piece prototype Models is a standard service offering.

Service Features:

- Prototype Work Stations, Personal Computers and Microsystems.
- Engineering Modules and Sub-Assembly Fabrication.
  - —Surface Mount Technology
  - —Thru-Hole Technology
- Mechanical Models and Assemblies
  - —Metal
  - —Plastic
  - —Wood
- PROM Programming
- Finishing
  - —Paint
  - —Silkscreen
- Engineering Stockroom

N.P.O. experts will create and test your prototypes from early conceptual designs. Our broad range of services allow you to quickly create a complete product in prototype form from limited documentation.

Prototype Module assembly provides first prototypes within two days or less. Technical Services available also include experimental wirewrap, hand testers and test head construction; short/continuity testing, cable fabrication, and PROM programming utilizing data I/O equipment.



Mechanical prototypes of simple parts up to complete complex assemblies are quickly constructed by NPO. A full range of Mechanical Services are available including:

- Precision Machining
- Mechanical Pattern & Model Making
- Sheet Metal Fabrication
- Tool & Die: Design & Build
- Full-color Paint and Silkscreen Shop
- Materials Research Lab for product quality, safety and uniformity standards

Our Engineering Stockroom can provide material transfer, kitting, and distribution services, with one-day turnaround on most raw materials or capital equipment transfers. Over 3000 commonly used components are stocked on-site at the Mill. All parts are available through Stockroom Window Service, to allow you to order and receive necessary parts, during regular work hours.

digital

NPO New Product Operations Maynard, MA. MLO5-4/P54 223-3874

Responsiveness and flexibility for the engineering and manufacturing communities

This world-wide Corporate resource introduces new piece parts for Digital products.

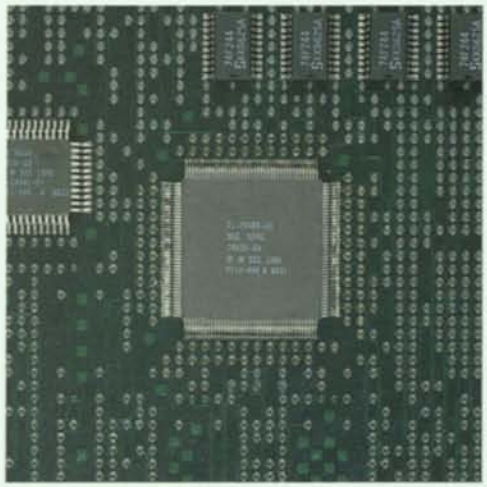
Service Features:

- IC Applications Engineering
- Value Engineering
- Component Project Management
- New Part Sourcing
- Material Support
- Producibility
- Component Engineering
  - —Incoming Inspection Procedure
  - —Qualification Testing
  - —Purchase Specification

NPO is constantly striving for excellence in the marketplace. To accomplish this goal, we have dedicated a number of resources to the task of selecting, qualifying, and sourcing new components for Digital products. Other resources include Component Project Management and Material Support to ensure the timely completion of Qualification Testing and Purchase Specifications as well as the availability of unique new parts for DVT, DMT builds.

Our role includes:

- Consulting on component selection and characterization, to minimize part proliferation and to ensure use of the correct part for the application.
- Design service as part of the component selection process within the commodities of magnetics, line filters and cable assemblies.
- Technical qualification testing of components against vendor and/or DEC specifications, for the intended application.
- Writing of Purchase Specifications for newly introduced components.
- Materials Support and Sourcing for all new piece parts and subassemblies on new products.



- Proactive introduction of new technology to DEC at the component level (surface mount devices, magnetics, semiconductors, etc.)
- Assistance to Design Engineering on cost-effectiveness, producibility issues, and new technologies.
- Working with Design Engineering on specific part-application problems, and arrange for and monitor part failure analysis.
- Managing the analysis of competitive products by arranging for a complete disassembly in the presence of component engineering, purchasing and materials specialists, and the preparation of a complete costed bill of materials with notes on component selection and design approach.

New Products Purchasing, along with commodity Component Engineering, is responsible for sourcing of external subassemblies and piece parts. The goal of our purchasing group is to ensure that all selected suppliers support Design Engineering requirements, and that they perform within the framework of Digital's Corporate Materials Architecture, once the product goes into Manufacturing.

digital

NPO New Product Operations Maynard, MA. MLO5-4/P54 223-3874

The NPO Directory

GENERAL NPO INFORMATION

NPO Program Office	FRSBEE::NPOINFO	223-3874	MLO5-4/P54

COMPONENT SERVICES

Component Engineering	FRSBEE::COMPO	223-8404	MLO5-3/U85
Component Project Mgt	FRSBEE::COMPO	223-9236	MLO21-1/T82
New Products Materials	FRSBEE::COMPO	223-6316	MLO21-1/T70
Purchasing/Sourcing	FRSBEE::COMPO	223-8270	MLO21-1/T70
Producibility	FRSBEE::COMPO	223-3451	PKO3-2/20A

PROTOTYPE SERVICES

Finishing	FRSBEE::MCESS	223-2830	MLO5-1/P55
Purchasing/Materials	FRSBEE::MODEL	223-2455	MLO5-3/E22
Producibility	FRSBEE::MODEL	223-2583	MLO5-3/E22
	FRSBEE::MCESS	223-6769	MLO5-1/P55
Prototype Project Management	FRSBEE::MODEL	223-2583	MLO5-3/E22
Prototype Project Management	FRSBEE::MCESS	223-9200	MLO5-1/P55
Materials Research Lab	FRSBEE::MCESS	223-3058	MLO5-1/P55
Mechanical Models	FRSBEE::MODEL	223-2583	MLO5-3/E22
	FRSBEE::MCESS	223-6769	MLO5-1/P55
Soft Tooling	FRSBEE::MCESS	223-6201	MLO5-1/P55

digital

MODULE SERVICES

BOM Development	FRSBEE::COMPO	223-6143	MLO21-1/T70
IC Programming	FRSBEE::MODEL	223-3255	MLO5-3/E22
Cable Fabrication	FRSBEE::MODEL	223-3255	MLO5-3/E22
Module Fabrication	FRSBEE::MODEL	223-3255	MLO5-3/E22
Software Tool Generation	FRSBEE::MODULE	223-5192	MLO3-3/T92
Test Program Development	FRSBEE::MODULE	223-5192	MLO3-3/T92
Hard Tooling	FRSBEE::MCCESS	223-6201	MLO5-1/E31

SYSTEM SERVICES

Customer Information	FRSBEE::NPOINFO	223-3874	MLO5-4/P54
Program Management	FRSBEE::NPOINFO	223-3874	MLO5-4/P54
Seed Programs	FRSBEE::NPOINFO	223-3874	MLO5-4/P54
Training and Documentation	FRSBEE::NPOINFO	223-3874	MLO5-4/P54
Vertical Markets Manufacturing	FRSBEE::VERTICAL	223-4062	MLO5-4/U18

<n>Conclusion <#>12<>
<n>Introduction <#>11<>
<n>Letter from John C. <#>10<>
<n>New Products Material Identification Program <#>9<>
<n>CFC Program <#>8<>
<n>Recycling -- Paper Program <#>7<>
<n>Recycling -- Plastics <#>6<>
<n>Recycling -- CRTs <#>5<>
<n>Energy Management Program <#>4<>
<n>Packaging Program Description <#>3<>
<n>PDC Program Description <#>2<>

(8) (3) (6) (4) (5) (2) (1) (9)

- can't access 2

—Draft— 13

10/28

GENERIC OM — 14

PROJECT PROPOSAL

PROJECT: 1990 Waste Management Report

OBJECTIVE: To provide a summary of the company's waste reduction programs and activities.

AUDIENCE: Potential investors/current investors; media (print and broadcast); local, state, Federal government regulatory agencies; customers/potential customers; environmental groups; community groups.

RATIONALE: Concerns/questions about Digital's waste policies, practices and programs have increased dramatically over the past year. These inquiries have come from a variety of sources, including investor groups, environmental groups, the media, government agencies and customers. The circulation of inconsistent or inaccurate information about these programs can put the corporation at risk. Given the volatility of these issues, it is strongly recommended that a singular piece (i.e. waste management report) be developed that would provide consistent, accurate information about Digital's waste programs. The report could be used as a factual piece that would address all the above identified audiences.

PROPOSED FORMAT: The report would be divided into three sections:

- Introduction (Vision, Purpose, Overview Goals)
- Program Descriptions (Problem, Solution, Results)
- Future Plans (Next Steps)

(complete, detailed format outline available)

TIMETABLE: By the week of October 22, an edited version of the document will be circulated for a final review. Final copy from this review is due October 29; after which the typesetting/ mechanical phase will be activated; and the finished piece available by January 15, 1991.

RUNSIZE/ COST: 30,000 copies @45K

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006363
Date: 05-Oct-1990 11:55am EDT
From:
FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (DAVE WEIL @CFO)

CC: Remote Addressee (JOHN CAULFIELD @GSO)

Subject: Summary document for Annual Report Reviewer

Dave,

Following is the Annual Report summary document we discussed. One page description of the project, inclusive of truncated timetable/budget. This is the piece we discussed to provide to a third-party unbiased reviewer of the Annual Report -- you suggested Dan Infante as the candidate.

Regards,
Ann

I N T E R O F F I C E M E M O R A N D U M

Date: 24-Sep-1990 03:29pm EDT
From: DAVID WEIL
WEIL.DAVID AT A1 AT ICS AT PKO
Dept: Waste Minimization Group
Tel No:

TO: See Below

Subject: Annual Report for Waste Management

At the last core group meeting, Ann presented a plan for the Waste Management Annual Report to be used both externally and internally. A prime section in the report is the specific program section that requires a write-up from project managers. This letter describes the format for the annual report and the content of the program description section.

it is requested that you write the program description for the annual report. A first draft is due to Ann by October 12, 1990. Between October 12 and 26, and editor will contact you to finalize the content of your program description. To assist you, attached is a sample (my first draft on plastics).

Here is the list of projects and responsible project leaders that are requested to prepare the description:

PDC Model	Carmine Riccioli
Packaging Program	Larry Nielsen
CFC Program	Clint Ackerman
Material Identification	Karen Salveta
Recycling Program:	
Plastics	Dave Weil
CRTs	Joe Collentro
Paper	Deb Grahn
Energy Management	Dan Hlozik
Capital Equipment:	
Manuf./Process Equipment	John Doyle
Computers (Digital)	Janice Brown
Furniture	Jack Kennedy
DIAL	Paul Coute

Each of your project descriptions will have six parts:

- Problem Statement (description/purpose of program)
- Solution Digital has implemented/or is proposing to implement
- Progress/Results (data support)
- Graphic (if applicable)
- Future Plans and/or R&D efforts (if applicable)
- Contact for more information (leader or team members)

The overall report, which is targeted for completion by December 31, will have 3 major sections:

- Introduction (Vision, Overview, etc.)
- Project Descriptions (described above)
- Future Plans (Overview goals, etc.)

Please call if you have any questions regarding this report or the whole annual report.

Thanks for your help.

Dave and Ann

Distribution:

TO: JOHN W KENNEDY @MRO
TO: JANICE BROWN @VRO
TO: JOHN DOYLE @NRO
TO: DAN HLOZIK @KNX
TO: DEBORAH GRAHN @WJO

CC: JOHN CAULFIELD @GSO
CC: ANN FULLERTON @MLO

Use the RDL option to see remainder of distribution lists.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006084
Date: 10-Sep-1990 07:55pm EDT
From: FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (DAVE WEIL @ICS)

Subject: Waste Management - Annual Report

Dave,

This will serve as a recap of our meeting today re: Waste Management Annual Report.

First, we recommend doing an annual report first, with subsequent quarterly reports.

The proposed format for this report is:

Section 1 -- Introduction (includes, not limited to):

- -- Vision Statement
- -- Purpose of document
- -- Overview Waste Management Program Description
- -- Overview Data (eg. goal to reduce waste by 50% by year end)
- -- Employee Invovlement Message

Section 2 -- Specific Program Descriptions (includes, not limited to):

- -- PDC Model
- -- Packaging Program
- -- CFC Program
- -- Material Identification
- -- Recycling Program:
  - Plastics
  - CRTs
  - Paper
  - Polystyrenes
- -- Energy Management Program
- -- Capital Equipment:
  - Manufacturing/Process Equipment
  - Computers (Digital)
  - Furniture
  - DAIL

Each of the above delineated programs would contain the following information:

- -- Problem Statement (description/purpose of program)

-- Solution Digital has implemented/or is proposing to implement
-- Progress/Results (Data justification)
-- Graphic (if applicable)
-- Contact for more information
-- R&D efforts (if applicable) and/or future plans

Section 3 -- Future Plans (this section includes, but not limited to):

-- Goals (with data, if applicable)
-- Employee involvement message

Dave, I've just opened Pandora's Box with this memo. . . Next step is to send a memo to each program manager with a request for the following information on their project (with a due date):

-- Problem Statement (description/purpose of program)
-- Solution Digital has implemented/or is proposing to implement
-- Progress/Results (Data justification)
-- Graphic (if applicable)
-- Contact for more information
-- R&D efforts (if applicable) and/or future plans

and attached to it will be a sample to show them the way!

Regards,
Ann

From: COGITO::SHEMCHUK 13-SEP-1990 16:43:04.19
To: ASABET::FULLERTON,WHALEN,SHEMCHUK
CC:
Subj: Proj. Plan for Waste Mgmt. Report.

PROJECT PLAN

DATE SUBMITTED:	09/13/90
PROJECT TITLE:	1990 Waste Management Report
JOB NUMBER:	BA7510-1
COST CENTER:	CKA
START DATE:	08/09/90
COMPLETION DATE:	01/31/91
CLIENT:	Ann Fullerton
CLIENT GROUP:	CPR COST CENTER: CKA
DTN:	223-6045 EMAIL: ASABET::FULLERTON
PROJECT REVIEWER:	Ann Fullerton
MCG PROJECT MGR.:	Ken Shemchuk
DTN:	287-3592 EMAIL: COGITO::SHEMCHUK
PROJECT TEAM:	Writer/Editor: Kate Whalen Designer: Ken Shemchuk Illustrator: Eric Niebel (contract)
MARKETING TOOL:	A variety of environmental marketing initiatives are being instituted throughout the corporation. A fundamental question that each of these initiatives will encounter is, "What is Digital doing about waste reduction/environmental issues?" This report will be an effectual way to address this question.
PROJECT OBJECTIVE:	To provide a summary of the company's waste reduction/environmental program/activities.
AUDIENCE:	Investor Relations, Community Relations, Public Relations/Media Relations, Government Relations and Waste Management Groups.
PROJECT FORMAT:	8.0"x 11.0", 28 page Report with graphics and illustrations throughout.
PROJECT QUANTITY:	10,000, 20,000 or 30,000 units.

DISTRIBUTION: U.S.

DESIGN TREATMENT: Utilize the same specifications used on the "Earth Vision" campaign including: Recycled paper, Earth Vision graphic, color scheme and typography.

SCHEDULE: 08/09/90: Preliminary meeting

09/11/90: Conceptual presentation to client

Balance of schedule: TBD

BUBGET

Design and development:		$ 2,360.
Project management, client meetings and travel:		$ 2,360.
Writing, includes research:		$ 7,375.
Editing:		$ 295.
Typesetting (24 pages, including some charts):		$ 5,500.
Mechanical preparation:		$ 1,416.
Photostats:		$ 150.
Print production:		$ 520.
Illustrations (10), includes meetings, roughs and finals:		$ 2,000.
Printing:	10,000 units:	$11,800.
	20,000 units:	$17,350.
	30,000 units:	$22,075.
Total on 10,000 units:		$33,776.
Total on 20,000 units:		$39,326.
Total on 30,000 units:		$44,051.

Proposed budget contingent upon meeting all review, approval, and production schedules. Estimates do not include 5% sales tax and freight charges.

ANNUAL REPORT SCHEDULE

COPY (ROUGH)	10/12
EDITING	10/15 – 10/19
REVIEW/FINALIZE	10/26
TO TYPESET	11/1 (11/6)
RETURN FROM TYPESET	11/15
~~TO PRINT~~ MECHANICALS TO PRINTER	11/19
FINISHED PIECE	1/15

560
2
1120
510
1630

FIRST DRAFT → 10/22
REVIEW/COMMENT → 10/24 will get 26
SECOND DRAFT → 10/31 ; BACK BY 12/2 – TO 12/5
~~FEB~~ APPROVED COPY 12/20
TO TYPESET 11/7

12/25 here w/ KENNY ILLUSTRATION
10/31 9 A.M. HERE(?) KENNY "

9.6.90

1990 Waste Management Report

Proposed Design Treatment:

Utilize the same specifications used on the "Earth Vision" campaign which includes: Recycled paper (text and cover weight), Earth Vision graphic, color scheme and typography.

The following budget estimates are based on a 28 page Report:

Design and development:		$ 2,360.
Project management, client meetings and travel:		$ 2,360.
Writing, includes research:		$ 7,375.
Editing:		$ 295.
Typesetting (24 pages, including some charts):		$ 5,500.
Mechanical preparation:		$ 1,416.
Photostats:		$ 150.
Print production:		$ 520.
Illustrations (10), includes meetings, roughs and finals:		$ 2,000.
Printing:	10,000 copies:	$11,800.
	20,000 copies:	$17,350.
	30,000 copies:	$22,075.
Total on 10,000 copies:		$33,776.
Total on 20,000 copies:		$39,326.
Total on 30,000 copies:		$44,051.

NOTE: Printing quotes do not include 5% sales tax and freight charges.

Timeframe: from final copy to designer, production, to print delivery = 6 to 7 weeks.

9.6.90

Waste Management Quarterly Report

The following budget estimates are based on a 16 page Quarterly Report:

Design and development:		$ 1,180.
Project management, client meetings and travel:		$ 944.
Writing:		$ 3,500.
Editing:		$ 167.
Typesetting (12 pages) and some charts:		$ 3,000.
Mechanical preparation:		$ 708.
Photostats:		$ 100.
Print production:		$ 350.
Printing:	10,000 copies:	$ 4,795.
	20,000 copies:	$ 6,695.
	30,000 copies:	$ 8,315.
Total on 10,000 copies:		$14,744.
Total on 20,000 copies:		$16,644.
Total on 30,000 copies:		$18,264.

NOTE: Printing quotes do not include 5% sales tax and freight charges.

Timeframe: from final copy to designer, production, to print delivery = 5 to 6 weeks.

INTEROFFICE MEMORANDUM

Doc. No: 005660
Date: 24-Jul-1990 08:15pm EDT
From:
FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (JOHN CAULFIELD @GSO)

Subject: Waste Managment Annual Report

John,

Several companies, such as Polaroid, Kodak, the Boeing Company, produce a document that they refer to as an "Waste Reduction and/or Environmental Annual Report." Its' purpose is to provide a summary of the company's waste reduction/environmental programs/activities. I'd like to recommend producing such a document for Digital.

The format is standardly a brief introduction that outlines the company's waste reduction/environmental philosophy or policy; then a one or two page description and analysis of each program, e.g., CFCs, Recycling, Packaging, etc. I have sample copies for you to review.

The report is/can be used for several different purposes:

1. Investor Relations

The drafting of the Valdez Principles has resulted in key investment houses requesting information about major U.S. corporations' environmental/waste management programs. In fact, since the Exxon Valdez incident many investment houses are rating companies on how "environmentally responsible" they are, and, using it as a factor (among others) to recommend purchasing the companies' stock. Digital has been contacted by a few and has responded with its policy statement, however, the next question asked is what specific programs has Digital put in place to achieve these goals? A factual report that outlines Digital's programs with achievements would be an effectual support to its policy.

2. Community Relations

Environmental issues are "key" issues in many of the communities in which Digital does business. Environmental groups reside in all of these communities, and, request information about what the company is doing in this arena. Again, a factual report outlining Digital's programs would be an effective tool for addressing these inquiries.

3. Public Relations/Media Relations

As I noted in the PR plan, over the past five years environmental issues such as toxic waste, oil spills, the greenhouse effect,

have received more coverage than any other social issue. As such, it is to Digital's advantage to proactively discuss its environmental programs with the media. An "annual report" could be used "reactively" to address press inquiries, and "proactively" as a means to set up one-on-one briefings or backgrounding sessions.

4. Government Relations

A "waste management/environmental" report can be used as either a quick reference guide for the government relations staff and/or as a document that could be distributed to various government agencies.

5. Marketing Tool

A variety of environmental marketing initiatives are being instituted throughout the corporation. A fundamental question that each of these initiatives will encounter is, "What is Digital doing about waste reduction/environmental issues?" An "annual report" would be an effectual way to address this question.

In addition to these uses, such a report would ensure message and data consistency to all audiences, a key issue we currently face.

The next step, if you wish to move forward on this idea would be to contact the group I worked with to produce the EarthVision program and contract with them to provide a proposal and layouts.

I look forward to your input regarding this idea.

Regards,
Ann

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006851
Date: 06-Nov-1990 04:34pm EST
From: Deborah Grahn
GRAHN AT NHLA1 at WJOMTS at WJ
O

Dept:
Tel No: DTN 282-1443

TO: ANN FULLERTON @MLO

CC: CARMINE RICCIOLI @WJO

Subject: Re: one more time...

Greetings Ann, regarding your request, the following represents my best shot at figures. I'm still working on data collection and validation but what I have so far indicates that the combined efforts of DEC Manufacturing, Engineering and Marketing sites have recovered approximately 1,834,000 million pounds of paper for an estimated cost avoidance total of 200,000 thousand. Many of these sites implemented paper recycling during the Earth Day time frame so the average paper recycling program has only 6 months worth of history.

Environmental Trivia - as a result of this years paper recovery efforts, 15,589 southern pine pulp trees were saved, 6,419,000 gallons of water was conserved and 3,026 cubic yards or landfill space was spared.

I think you did a fine job capturing the essence of the "Paper Recycling Full Circle Program" and have just one point I'm unclear on.
Future plans... "a cross-functional committee was formed earlier this year to integrate current and future paper recycling programs throughout the company." My intent was not to confuse the charter of the Recycled Paper Committee who's main mission is recycled paper issues versus paper recycling/recovery programs. (Maybe an alternative term would be "program office" vs cross functional committee??) Anyway, Waste Management has been struggling with Area implementation delivery issues on programs for several months - roles & responsibilities meetings keep getting postponed, so how do we get to 100% compliance? In theory through the Area's but it's still a bit of a mystery. I really hate to be a nit but I do mean to be accurate, if this is a nit feel free to let me know - I just wouldn't want to mislead people.

Maybe something has been lost in the electronic means of communication, perhaps we should touch base verbally - I'll try your office on Wed.

Regards, Deb

From: IPEDSN::NIELSEN "LARRY NIELSEN; MLO8-3/D17; DTN 223-3758" 8-NOV-1990 09:27:09.83
To: ASABET::FULLERTON
CC: NIELSEN
Subj: FEEDBACK ON 11/7/90 DRAFT-PACKAGING WASTE MANAGEMENT

Ann, again I've highlighted my input in UPPER CASE.

I was wondering if you would like to fashion something about toxics in the packaging results section. I've included a note from Denis on this subject, for your reading pleasure.

regards,
Larry

CRT PROGRAM —

DISAS. / TREATMENT
PILOT PROJECT — DATE COMPLETED
SPECIFIC RESULTS
HOW MANY

PILOT PROJECT — REPROCESS GLASS TO
HIGHER/LOWER LEVEL GLASS
PROJECT

NXT STEPS:

1) ENVIRONMENTAL REVIEW
2) VOL. RUN TO ENSURE
3) PROCESS IN PLACE FOR DIGITAL

~~JIM WATZ~~
~~1. OTHER CO.~~
~~2. SAME QUEST~~

√ MEAS.

~~H/W~~
~~1. Copy of Proposed Regs~~
~~2. CIW IND. TASK FORCE~~

② OTA →

INTEROFFICE MEMORANDUM

Doc. No: 006922
Date: 12-Nov-1990 01:58pm EST
From:
FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (JOHN CAULFIELD @GSO)

Subject: Update on Waste Management Report

John,

Last Friday, 11/9/90, Legal provided input on the draft Waste Management Report. As a result of those comments and several other issues that have come to my attention, I have put this project on hold until your return next week (11/19).

Briefly the concerns expressed by Legal revolve around the accuracy of information for the following programs -- Plastics, CRT, Board/Component Recycling. It appears, after careful review, that the programs could be too immature to present to any external audiences. Joe Collentro, Cindy Lewis and I will jointly review these programs later this week and provide a recommendation as to their inclusion in the report.

In addition, conversations with Karen Salveta have indicated that it would be inappropriate to publicize the New Products/ Material Identification Program to an external audience until a pilot project is actually under way.

If these programs are deemed inappropriate for inclusion in the report, the only programs left are packaging, energy management, paper recycling and CFCs. Given the current status of the CFC program, if pushed, I would also have to recommend pulling it until the program manager has gotten the program under control. That leaves a report that discusses three programs.

John, I consider this both a good news/bad news situation. The good news is by putting the programs through the rigorous review process required for the report each program's strengths and weaknesses have been clarified. As weaknesses are identified, a factual recommendation

can be provided regarding whether it is appropriate at this time to promote the program(s) externally.

The bad news is, based on the current information I have, my recommendation is to postpone this project for six months or until substantive data is available.

Another way to look at this data is from a strategic business perspective: what this exercise has done is perhaps indicate what is missing

(eg., definition of a waste stream), what has worked (packaging, energy management), what needs more work and how to set priorities for that work.

I look forward to talking to you about this.

Regards,
Ann

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006912
Date: 12-Nov-1990 08:22am EST
From: DAVID WEIL
WEIL.DAVID AT A1 at ICS at PKO
Dept: Waste Minimization Group
Tel No:

TO: ANN FULLERTON @MLO

Subject: Annual Waste Management Report

Missed you at the Core Group meeting last week. So I presented the status on the Annual WM Report. I received some feedback that I wanted to provide to you so that we can decide how to proceed.

1. How can we spend $40,000 in times like these? The cost is one person's job. Manage as business not as marketing effort. What Marketing Group has asked for this? Do they really know what we need for the external market?

2. Don't put my name (US Field) on internal distribution.

3. Can we develop less expensive method of publishing? Use Desktop publishing.

   *Rich Mysak has action item to develop this with you (He has sources and systems knowledge.).

4. Exclusion of "capital equipment" from the report for external distribution may be OK, but exclusion from internal distribution is a sin.

5. Do people need this to get their job done? Don't do internal marketing?

6. If internal report is different than external (because of add of "capital equipment"), can we be creative about effective communication of it? e.g., o Announce when available for people who want to subscribe.
   o Use electronic distribution

Let's talk.

Regards,

Dave

PS - Joe Permatteo requested the opportunity to review the report prior to publication.

From: RECYCL::OSULLIVAN "This land is your land, This land is my land...."
6-NOV-1990 16:56:55.26
To: NIELSEN, DAVIES
CC: OSULLIVAN
Subj: Toxic Source Reduction in packaging materials

Larry,

The Toxic Model Legislation drafted by the SRC of CONEG has been passed in several North Eastern States (6 had passed in Aug) and at least two outside of the area (Io & Wi). This law requires that the total sum of Lead, Cadmium, Mercury and Hexavalent Chromium not exceed 600 ppm a maximum of two years after the law is passed, 250 ppm three years after and a 100 ppm after four years.

The Governors point at this law and say how great the law is and the goodness it does for the environment. They also point to it and say what a great "source reduction" measure this is.

I have talked to all of our major packaging suppliers and they all said that the packaging materials and/or components supplied to Digital meet the 100 ppm requirement currently. The people I talked to included PCA, Eastern, Sentinel, Graphic Design and our Plastic Engineering Group. The ink people at PCA said there were water based inks available for nearly all colors except bright orange and reds and they could get pretty close to these colors without using any heavy metals.

DEC STD 043 is out for technical review and requires the heavy metal content not to exceed 100 ppm.

I think we can legally claim that we source reduced our inks and coloring and stabilizers previously and we meet 100 ppm requirement of the law presently.

As a minimum, we have to state some where that our packaging and packaging components are currently in full compliance with the most stringent requirement of the Toxic Law.

denis

Author:
Date: 07-Nov-1990
Posted-date: 07-Nov-1990

PACKAGING PROGRAM

CHALLENGE

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations represents approximately 27,000 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, among Digital and its trading partners on packaging related expenses (manufacturing and distribution process, materials and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective.

SOLUTION

[SUGGESTION=START THIS OUT WITH "IN 1989 DIGITAL INITIATED...", THE WAY ITS WRITTEN, SOUNDS LIKE WE MAY ONLY BE CONCERNED WITH 1989 COSTS]

Digital initiated a corporate-wide Packaging Waste Management Program to reduce waste and its resulting cost in 1989. The program addresses all aspects of packaging related material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

The program is composed of projects focused on several areas of packaging waste management. It complements existing efforts, and provides a forum for packaging engineering organizations, as well as individuals within manufacturing and distribution sites, to transfer and promote new ideas and information on reusable packaging and alternative materials.

[CAN WE DROP THE REFERENCE TO REUSABLE PACKAGING AND ALTERNATIVE MATERIALS AT THE END OF THIS AS I DID IN THE LAST DRAFT. THIS STATEMENT WAS INTENDED TO APPLY TO ALL TYPES OF PROJECTS IN THE PROGRAM, NOT JUST REUSABLE PKG AND ALTERNATIVE MATERIALS. IF WE MUST HAVE A REFERENCE, I WOULD SUGGEST AN OVERVIEW PHRASE LIKE, "....transfer and promote new ideas and information on THE VARIOUS TYPES OF PROJECTS THAT MAKE UP THE PROGRAM." THIS WOULD FIT, SINCE THE VERY NEXT PARAGRAPH DETAILS WHAT TYPES OF PROJECTS MAKE UP THE PROGRAM.]

Specific projects fall into several categories that include, but are not limited to: packaging recycling, resuable packaging, source reduction, elimination of Chlorofluorocarbon(CFC)-processed packaging materials, alternative materials usage.

[CAN WE LIST SOURCE REDUCTION FIRST, FOLLOWED BY REUSABLE PACKAGING, AND THEN RECYCLING. WE ARE EMPHASIZING SOURCE REDUCTION THE MOST. REUSABLE PACKAGING IS ACTUALLY A FORM OF SOURCE REDUCTION. I SEE THAT YOU MAY WANT TO LIST RECYCLING FIRST SINCE IT MAY HIT MORE ON THE ENVIRONMENTAL MESSAGE. MANY ENVIRONMENTAL GROUPS AND OTHER ORGANIZATIONS HAVE GIVEN SOURCE REDUCTION A HIGHER PRIORITY THAN RECYCLING. THE PACKAGING WASTE MANAGEMENT STRATEGY WE HAVE WRITTEN EMPHASIZES SOURCE REDUCTION, REUSE, RECYCLING, IN THAT ORDER.]

RESULTS

- To date, the rate of packaging waste from Digital operations going to landfills has been reduced by 250 tons annually.

- To date, a reduction of $1.6 million for overall packaging costs through pilot projects such as reusable packaging for shipping products between facilities (yielded $476,000 savings annually) and redesigning product packaging for material and cost reduction (one project, the redesign of a disk drive pack has yeilded $120,000 savings annually).

- Reduction of 150,000 cubic feet of dunnage per year by using IMPROVED ORDER CONSOLIDATION TECHNIQUES throughout our major operations. IN CONJUNCTION WITH THIS EFFORT WAS A CHANGE IN THE DUNNAGE MATERIAL USED FROM wadded paper (which can be disposed of through recycling) FROM flowable plastic.

- Completed several source reduction package design pilot projects that have resulted in significant material usage reductions. Examples include 66% reduction in cubic space occupied on redesign of mouse package; 13% reduction in cubic space occupied by redesign of workstation package; 26% reduction in cubic space occupied by redesign of disk drive package. ****Larry, why can't we just say "reduced package size by 66% or 13% instead of cubic space occupied; better yet can we say reduced materials used by xx%***** [THE METRIC OFTEN USED IN THE INDUSTRY IS "CUBE" OR CUBIC SPACE OCCUPIED. I THOUGHT MANY PEOPLE WOULD NOT KNOW WHAT THE WORD "CUBE" MEANT IN THIS CONTEXT. TO BE ACCURATE, I WOULD HAVE TO RECALCULATE THE % NUMBERS IF YOU WANTED TO SAY "REDUCED MATERIALS USED BY XX%" SINCE THIS IS NOT THE SAME AS CUBE REDUCTION. I'M OK WITH CALLING IT PACKAGE SIZE INSTEAD OF CUBE. LET ME KNOW IF YOU WOULD LIKE TO USE YOUR PHRASE AND I'LL CRANK THE NUMBERS.]

- Elimination of the molded foam and foamed-in-place CFC-processed packaging materials for Digital manufactured

products.

FUTURE PLANS

The overall goal of the packaging program is eliminate 5,400 tons of packaging disposal and thereby decrease packaging costs by $30 million by 1993. To achieve this goal, several strategies are currently being implemented.

These include mobilizing employees in geographic areas and sites to support and begin execution of program during 1991, establishing a pilot project for outbound reusable packaging and expanding current efforts during the next two years through aggressive goal setting and ownership by business units.

CRT + GENERIC COMPONENT BOARDS

CFC

CRT

INTEROFFICE MEMORANDUM

Doc. No: 005346
Date: 08-Nov-1990 13:57 EST
From: CINDY LEWIS
LEWIS.CINDY
Dept: LAW
Tel No: 223-5242

TO: ANN FULLERTON (PAPER MAIL)

Subject: WASTE MANAGEMENT REPORT

Ann,

I am attaching a marked-up copy of your waste management report. I read through it only once, so please forgive any comments that may not be totally valid or consistent.

Once you have had a chance to review my comments, I would like to meet to talk about a couple of the sections I've expressed concerns about.

Call me when you are ready to chat.

Cindy

pkg.txt

MARKED UP 11/7/90 DW 11/3 VERSION

John C. Letter

In the past, Digital has focused mainly on the disposal of waste to meet or exceed the environmental standards set by governments. Today, Digital is focusing on source reduction -- don't build it or buy it, if it isn't needed.

Over the years, many Digital sites have done an excellent job of dealing with waste and environmental issues, but their activities were largely separate and local. My role, as the Corporate Waste Management program manager, is to integrate these activities, and identify new areas of opportunity for source reduction.

The complexity of doing business on a global basis coupled with the current quantity and diversity of government regulations has now reached the point where a tighter degree of coordination is needed to ensure Digital is doing the right thing in all its locations throughout the world.

One of the biggest challenges in achieving this integration is promoting behavior change about waste throughout the corporation. The program must build awareness, concern, processes and habits that make waste management a routine part of Digital's business operations.

Fortunately, Digital has many enthusiastic employees, who are working for site waste reduction programs. I receive notes daily from empolyees asking, "How can I help?" How successful Digital is at channeling this momentum, and, truly achieving widespread employee involvement, will be a key ingredient to the successful implementation of the program.

When people start becoming more aware of waste across an entire site -- in terms of office supplies, lights and power -- waste management can truly be seen as good business practice with tangible evidence ~~of cost avoidance~~ at the bottom line.

No correction to read of letter

A key tenet of Digital's seven-point environmental policy is "We shall conserve natural resources." It is part of Digital's EarthVision -- the goals the company's seeks to achieve environmentally. EarthVision is the waste management program's vision to implement a world-class waste management program. It will take time and a lot of hard work, but Digital is prepared to invest in the future benefits such programs will provide to the global environment.

INTRODUCTION

Digital is committed to taking an active role in addressing environmental issues. To this end, Digital instituted a formal Waste Management Program early in 1988. The program, under the direction of senior management, seeks to reduce the generation of waste at the source in our worldwide facilities through cost-effective changes in process technologies and materials usage.

Early in 1988 when the program began, Digital disposed of an estimated 125 million pounds of waste per year, at a cost of approximately $500 million. At that time, the company set a overall goal to reduce disposal volumes by 50% in five years.

Digital is proud to report that in the program's first 18 months, it has made significant progress toward this end. On the following pages, ~~the~~ waste management programs and projects that have enabled Digital to effectively reduce waste through environmentally sound practices are described.

Digital is particularly proud of the work it has done in the areas of packaging, energy management and plastics recycling. With these programs the company has been able not only to reduce current usage, but to look ahead and initiate proactive research and development work that will decrease and, in certain areas eliminate, usage of materials that would otherwise end up in

already overburdened landfills.

Central to the waste management program is its integration into the company's business practices. Waste management is good business. It can only be achieved if it is integrated into the worldwide environment of all employees.

Throughout Digital, many committed employees both within and outside the environmental area, have worked to implement not only the formal waste reduction programs described on the following pages, but their own innovative projects.

It is perhaps the program's biggest challenge to foster such employee involvement. Only when every employee considers new ways to reduce waste, recycle materials and substitute safer materials for those that could pose a potential environmental risk can Digital truly achieve a world-class waste management program.

Although Digital has made major inroads on several key waste management issues, there is still much work to be done. In many areas the answers are not easy. They will require time and extensive investment. Digital accepts this challenge, and through its employees, will continue to build on its waste management accomplishments to fulfill its long-term commitment to responsible environmental citizenship.

PACKAGING PROGRAM

CHALLENGE

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations represents approximately 27,000 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, among Digital and its trading partners on packaging related expenses (manufacturing and distribution process, materials and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective.

SOLUTION

Digital initiated a corporate-wide Packaging Waste Management Program to reduce waste and its resulting cost in 1989. The program addresses all aspects of packaging related material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

The program is composed of projects focused on several areas of packaging waste management. It complements existing efforts, and provides a forum for packaging engineering organizations, as well as individuals within manufacturing and distribution sites, to transfer and promote new ideas and information on reusable packaging and alternative materials.

Specific projects fall into several categories that include, but are not limited to: packaging recycling, resuable packaging, source reduction, elimination of Chlorofluorocarbon(CFC)-processed packaging materials, alternative materials usage.

RESULTS

- To date, the rate of packaging waste from Digital operations going to landfills has been reduced by 250 tons annually.
- To date, a reduction of $1.6 million for overall packaging costs through pilot projects such as reusable packaging for shipping products between facilities (yielded $476,000 savings annually) and redesigning product packaging for material and cost reduction (one project, the redesign of a disk drive pack has yeilded $120,000 savings annually).
- Reduction of 150,000 cubic feet of dunnage per year by using wadded paper (which can be disposed of through recycling) instead of flowable plastic throughout our major operations.
- Completed several source reduction package design pilot projects that have resulted in significant material usage reductions. Examples include 66% reduction in ~~cubic space occupied~~ on redesign of mouse package; 13% reduction in ~~cubic space occupied~~ by redesign of workstation package; 26% reduction in cubic space occupied by redesign of disk drive package. ~~****Larry, why can't we just say "reduced package size by 66% or 13% instead of cubic space occupied; better yet can we say reduced materials used by xx%******~~
- Elimination of the molded foam and foamed-in-place CFC-processed packaging materials for Digital manufactured products.

FUTURE PLANS

The overall goal of the packaging program is eliminate 5,400 tons of packaging disposal and thereby decrease packaging costs by $30 million by 1993. To achieve this goal, several strategies are

currently being implemented.

These include mobilizing employees in geographic areas and sites to support and begin execution of program during 1991, establishing a pilot project for outbound reusable packaging and expanding current efforts during the next two years through aggressive goal setting and ownership by business units.

ENERGY MANAGEMENT PROGRAM

CHALLENGE

Digital facilities spend approximately $150,000,000 worldwide for energy annually. The primary source of this energy is electricity (used for lighting, computers, air conditioning, motors, pumps, etc.) with smaller amounts of natural gas and fuel oil providing energy for heating.

For several years energy conservation has been a key issue not only in the United States, but also around the globe. More and more scientific evidence supports the negative impact on the environment of burning fossil fuels. In addition, the costs of those fuels have continued to rise. Businesses and individuals alike need to improve efficiency and decrease fuel usage.

preaching!!

SOLUTION

Digital has had an energy management program in place since 1972. The program's continuing goal is to eliminate waste and make cost-effective use of energy resources. Specific projects include, but are not limited to:

- Installation of energy management systems in 42 U.S. Digital facilities. These systems employ cost-effective energy technology such as high efficiency lighting systems, environmental control systems, heat exchangers and power factor correction equipment.

- Participation in load management programs sponsored by utility companies. Load management programs work to reduce consumption, thereby reduce the need to generate more electricity.

- In conjunction with utility companies, the development and implementation of cost-effective rebate programs.

- Conduct pilot programs in Digital facilities, such as the high-efficiency, dimable fluorescent light fixture project, to test new energy management products and technologies.

- Offer an annual two-day energy management workshop/seminar for Digital Facilities management to exchange the latest information on energy management techniques and equipment.

- Institute an Energy Investment Program that provides funding to Digital facilities to implement energy management programs.

- Co-sponsor visits by local utility companies to Digital facilities to make energy conservation presentations to employees. The presentations provide information on energy-efficient hardware for the home, home energy audits procedures and examples of energy saving projects that can be implemented in the home.

RESULTS

- 12,900,000 kilowatt hours of electricity is saved annually from Energy Investment Program projects. Specific examples of projects include:

  -- a lighting upgrade program at Digital's Phoenix, Arizona facility that decreased electricity usage by 1,400,000 kilowatt hours annually

  -- installation of an energy management system at Digital's Springfield, Massachusetts facility that reduced usage by 2,160,000 kilowatt hours annually

  -- upgrade of an air compressor system at Digital's Andover facility that reduced usage by 1,280,000 kilowatt hours annually.

An additional (??)

- 5,825,000 kilowatt hours of electricity is saved annually through participation in the Massachusetts Electric Utility Rebate Program.

how so?

- Test results from the high-efficiency, dimable fluroescent light fixture pilot program indicate a reduction of 60% energy consumption is achievable by employing this technology.

- Digital's reduction of approximately 18,725,000 kilowatt hours of electricity annually yields other environmental benefits such as eliminating the need for 30,000 barrels of oil or not producing approximatly 31,000 pounds of carbon dioxide.

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program particularly in the areas of implementing energy management programs in all Digital facilities, and the testing of new energy management products and technologies. The program's overall goal is to have no growth in energy usage and where possible reduce current usage.

Specific projects include expanding use of high-efficiency lighting systems throughout all Digital facilities; testing alternative methods for running overall facility air conditioning units and modification of existing computer room air conditioning systems to decrease energy consumption; reduction and where possible elimination of facility perimeter lighting when adequate day lighting is available.

In addition, efforts to educate our employees about home and work energy-efficient practices will be expanded.

CFC PROGRAM

PROBLEM

Scientific evidence has strongly indicated that chloroflurocarbons (CFCs) are destroying the protective ozone layer that shields the earth from harmful ultraviolet radiation. Like most computer and electronics companies Digital uses CFCs as a cleaning solvent in its manufacturing processes.

Digital is currently faced with a major challenge to reduce its worldwide usage of CFCs by 85% by the year 1995. This goal is consistent with the worldwide phase-out efforts driven by the Montreal Protocol (an international treaty, ratified in 1987 by 24 nations including the United States, that calls for a cut in the production and consumption of CFCs).

I thought the goal was 100%?

SOLUTION

For several years Digital has been working with other electronics companies on the CFC problem. Specific projects include, but are not limited to:

In 1986, Digital chaired a CFC Task Force established by the American Electronics Association (AEA) Environmental Committee. The Task Force worked with the U.S. State Department and the U.S. Environmental Protection Agency to formulate the U.S. positions

that were later used in the development of the Montreal Protocol.

In June of 1988, Digital instituted a worldwide CFC Policy to "reduce immediately, and where possible, to eliminate the company's use of CFCs." This policy represents a company-wide commitment to do everything possible to eliminate the use of CFCs within Digital. Concurrently, a CFC Task Force composed of representatives from the major users within Digital was formed to coordinate implementation of the phase-out policy.

Individual Digital employees also have played visible roles both as initiators of research and development activities and as advisors to public policy forums. For example, Leo Lambert, who spearheaded the transition in Digital ten years ago to water-based cleaning systems for printed circuit board modules, currently is an advisor to the United Nations Environment Programme.

Research and development activities based on Mr. Lambert's seminal work on water-based cleaning systems continue, and currently are targeted at understanding how to apply this process to other types of manufacturing processes that use CFC solvents.

Most recently, Digital joined the Industry Cooperative for Ozone Layer Protection (ICOLP). The cooperative is a joint venture between the U.S. Environmental Protection Agency and several multinational companies. Its purpose is to exchange information

and technology for the worldwide reduction of CFC usage in the electronics industry.

RESULTS

- Developed a water-based cleaning process to replace the use of CFC cleaning solvents in the manufacture of surface-mount printed circuit board modules, and offered process specifications to ICOLP to distribute free of charge to the electronics industry.
- Reduced CFC-usage by 50% in 1989 at storage manufacturing facility in Kaufbeuren, Germany by the installation of recycling system. Sister facility in Colorado Springs is in the process of installing the same system resulting in similar decrease.
- Digital's Shrewsbury, Massachusetts (type of facility) manufacturing facility 100% CFC-free in 1990.
- Use of CFC-processed packaging will be phased out as of the end of the year.
- The use of halon as a fire suppressant is being replaced by carbon dioxide where possible.
- The practice of releasing halon during equipment testing has been discontinued.

FUTURE PLANS

Digital's goal is to eliminate CFC usage from its manufacturing facilities. Initially, the company focused on establishing good maintenance procedures and recycling processes. Future efforts will focus on increased research and development on alternatives.

CFC usage presents an ongoing problem that will not be solved quickly or easily. Although CFC elimination is a high priority for Digital, CFCs are used for many different purposes and their total elimination will not occur immediately. The development of

non-CFC products and the design of new processes that do not require CFCs will take time and will require extensive investment.

Does not talk about reductions of CFC's in: ① Air handling for our facilities.
② Environ Systems we sell to customers.
③ Packaging — we allude to it here, but no "futures" even.

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills.

Landfills as a disposal method, are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, ~~and~~ are projected to rise to approximately $350 to $500 per ton by the mid-90s.

and up to $450 in some European countries, Today

SOLUTION

Digital instituted a Plastics Recycling Project early in 1990. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives have been established.

In the short term, an objective to eliminate the current inventory of plastics ~~inventory~~ scrap was established. Working a major supplier, a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic was then ground up and shipped to the suppliers' recycling group. *

In the ~~interim~~ intermediate period, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This ~~would~~ will enable future processing of the material.

For the long term, efforts are ~~currently~~ in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in current Digital products and other product development areas.

RESULTS

- Disposal of 100,000 pounds of plastic this year through the decomination process instead of using landfills. *
- ~~Reduction of current plastic inventory by 25% through a granulation process.~~ This will not be accomplished
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into test samples of products that are currently being evaluated. It is anticipated that the company will soon be able to specify a mixture of recycled and new resins as acceptable for the manufacture of products. (both Digital products and other applications)

* Note: this cost Dec more than the landfill cost

FUTURE PLANS

Research and development funding has been appropriated in several areas for use during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins, the effect of multiple recylcing on resin characteristics, and the development and testing of new applications for recycled resins.

In addition, to enhance sorting techniques, a process to imprint plastics identifiers on each product part is being ~~piloted~~ developed. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces reprocessing costs.

Full scale implementation of this process will occur during the next several years (Maybe ??

RECYCLING PROGRAM

CATHODE RAY TUBES (CRTs)

CHALLENGE

Cathode Ray Tubes (a key component of Video Display Terminals) are commonly disposed of throughout the industry in hazardous waste landfills. Increasing environmental concerns in conjunction with more stringent regulatory standards indicate the limitation of these types of landfills. Environmentally sound alternative methods need to be identified and implemented.

SOLUTION

A project team was formed to develop a short and long term strategy for the disposal of CRTs. The project goal was to identify methods for recycling CRTs thereby eliminating landfill disposition and reducing associated costs. Use of landfills was deemed an unacceptable long-term option.

The team explored several alternate methods and established prorities. One of the top priorities identified was to explore video display terminal (VDT) reuse/refurbishment/resale. Working in conjunction with the company's Property Disposition Centers a sorting process is being established. Those VDTs in good working order will be earmarked for internal use, charitable donations or possible resale to equipment

L ?, against Co policy !!

brokers.

For the long term, monochrome CRT recycling into a ~~higher-or-lower-level~~ another glass product was identified as an appropriate alternative.

Work is currently underway with a glass manufacturer and preprocess company (a company that cleans the interior of the glass tube) to develop a monochrome CRT recycling process that will allow the glass component to be recycled ~~to a higher-or lower-end glass product~~.

RESULTS

- Pilot project for CRT disassembly and treatment (cleaning of the interior glass tube) completed.
- Pilot project to reprocess glass into ~~a higher-or lower-level~~ usable glass ~~products~~ was completed.
- Based on the results of these pilots, a solution for monochrome CRT recycling is targeted for the end of the calendar year.

FUTURE PLANS

The initial focus of the CRT recycling program is aimed at the monochrome product. This is due to the consistency across the industry of monochrome glass. The chemistry of color glass varies widely. Testing for color glass will commence after the monochrome glass process have been proven out in volume.

RECYCLING

PAPER PROGRAM

CHALLENGE

Approximately 15 million pounds of paper worldwide is disposed of by Digital's employees per year. As an environmentally-responsible company, sending this waste to already overburdened landfills or incinerators are unacceptable options. The short-and-long term effects on the environment are too high.

SOLUTION

Digital has had paper recycling programs in many of its worldwide facilities for the past ten years. Implementation of a corporate-wide paper recovery/recycling program is currently underway. The program advocates use of a "full circle" approach, supporting the Reduce, Reuse and Recycle tenets of good waste management practices.

The circle's starting point is to provide employees with dual wastebaskets, which enables source separation at the point of generation. Next, source reduction practices, such as making two-sided copies, routing documents to appropriate parties versus each party getting its own copy or changing printer options to eliminate burst and feeder pages are encouraged through employee communication and education projects.

To complete the circle, Digital encourages the specification and purchase of recycled products, such as all types of office supply paper (e.g., bond, copy, fax, note, computer), and other basic office supplies such as file and hanging folders, trash bins, rest room supplies, etc.

we want to make a market which pulls recycled paper thru.

Specifi: Part of Annual Report
Marketing flyer - approval 11/10/90
Internal publications
Letterhead/cards is coming

RESULTS

- Year-to-date figures for 1990 indicate that approximately xxxx pounds of paper have been recycled, yielding a year to date cost avoidance of approximately $xxxxxxx
- 80% of U.S. Digital Manufacturing sites have implemented paper recycling programs
- Re-routing the amount of paper disposed of by Digital employees yearly from the waste stream and into the recycling stream could conserve approximately 25,000 cubic yards of landfill space

Need to include Euro. where paper recycling is mandatory

FUTURE PL@NS

The goal of the corporate-wide paper recovery/recycling program is to have 100% compliance throughout all Digital facilities. To achieve this goal, a cross-functional committee was formed earlier this year to integrate current and future paper recycling programs throughout the company.

The committee's focus is identify, develop and implement programs to reduce paper consumption through source reduction and to incorporate the purchasing of goods made from recycled waste

paper into daily purchasing decisions.

What about engr work will be underway in 1991 to test recycled paper in our printers to enable our customers to also recycle paper.

RECYCLING PROGRAM

BOARD/COMPONENT PROGRAM

CHALLENGE

Printed circuit boards and the components embedded on them are commonly disposed of throughout the industry through a variety of methods. Many end up in landfills and incinerators. A disassembly method that focussed on recycling, reuse and reclamation would decrease dependency on landfills and provide a more environmentally efficient approach.

SOLUTION

A project team was assigned to assess Digital's current printed circuit board disassembly and disposal process. The group identified several methods that were currently being used and developed a an approach to standardize environmentally efficient programs.

Initial efforts focussed on generic components derived from the disassemby process. Recycling through secondary markets was identified as the preferred method and an implementation process was instituted.

Next, ~~once disassembled~~ that had been disassembled, the group identified reclamation as an effective approach to disposing of the boards. The third stage of the program addressed excess and obsolete new components. Based on

See Note at end

results of the generic component recycling program, recycling through secondary markets was identified as preferable to scraping or landfilling.

RESULTS

- By the end of the year Digital will have disposed of 100,000 printed circuit boards through recycling of generic components and reclamation efforts instead of shipping them to a landfill or incinerator.
- Several hundred thousand excess or obsolete new components will be recycled through secondary markets.
- Cost savings of approximately $10,000 by decreasing usage of standard landfill and incerator disposal processes.

See Note

NOT REALLY

FUTURE PLANS

Future programs for printed circuit board dissasembly and disposal are focussed on research for alternative methods for the disassembly process, and recovery of all metals from the boards.

In addition, Digital is pursuing the reuse internally of its proprietary components to further implement environmentally efficient practices.

Note

Prior process was to reclaim ~~[illegible]~~ metal from the boards via "smelting" type process. The only change is to recover generic components prior to metal reclaim. Are we ok in saying ~~[illegible]~~ what we are NOT doing?

PROPERTY DISPOSITION CENTERS

CHALLENGE

In 1989 Digital Equipment Corporation processed approximately 18 million pounds of excess and obsolete equipment (that included furniture, outdated software, field returns, customer trade-ins and returns, capital equipment and excess or obsolete inventories). The process that ~~was~~ had been used ~~at that time~~ needed standardization and modernization, for the past several years

SOLUTION

A small group was formed to analyze the existing process in the United States and provide recommendations for improvement. The team evaluated alternatives to identify a process that would insure security of material through the disposition process and would through disassembly to the commodity (component) level, use an environmentally proactive approach to the get maximum amount of recovery dollars.

The group's recommendation was to legitimize the disposition business with Profit and Loss ownership and responsibility. To accomplish this it was determined that all disposition operations would be consolidated into two key centers in the United States, and that all equipment deemed excess, obsolete or idle would be processed only

through ~~the~~ these Property Disposition Centers (PDCs). Digital currently owns and operates two PDCs in the United States -- one in the northeast and one in the west. The Centers provide for the disposition of excess and obsolete equipment from all U.S. ~~area~~ operations, and when applicable from other ~~geographies~~ countries.

RESULTS

- Consolidation of disposition locations from five using over one million square feet of space into two using approximately 75,000 square feet.
- $3.8 million cost savings by year-end through consolidation of disposition locations.
- Established an audit and certification process that effectively incorporates sound environmental and security procedures to disposition process.

Can we really say this? →

FUTURE PLANS

The PDC program has a twofold goal over the next year. One is to continue streamlining its current operation to achieve cost efficient and environmentally sound disposition of Digital's excess/obsolete equipment. The second is to effectively incorporate other applicable waste reduction programs into its framework. For example, several of the recycling programs, such as the board/component, plastics and CRT projects, are being integrated into the operation on a pilot project basis.

ADD

3. RD → Using what we have learned here, work with Dec operations in Europe & G/A to establish appropriate / improved / disposition. (This is not to say that they don't have good ones today, but we can always improve.)

In addition, the PDCs are intregrally linked to the Waste Management Group's initiative to develop and implement a consistent process for the composition and disposition of Digital's products and components.

MATERIAL IDENTIFICATION PROGRAM

CHALLENGE

Digital Equipment Corporation has a range of efforts in place to address specific component or product recycling and reclamation issues. These efforts would be more effective if a consistent well-defined process for identifying the composition and disposition of the company's products and components were in place.

SOLUTION

A project team was established to develop a process and an information technology system/tool that would improve the company's ability to reuse, recycle, resell or reclaim its products and components in an environmentally sound and cost-effective manner.

RESULTS

The initial focus of the project team was to identify the scope of information needed and the user community that would need to access the information. Next, source and user communites would have to be interviewed to evaulate the viability of the tool to their respective businesses.

To date, preliminary data element fields have been identified, as have the initial user communities. In addition, source and user communities have been interviewed and the appropriate information captured.

does this really add anything?

FUTURE PLANS

The next phases of this program involve developing plans throughout the corporation for the integration of required process changes into existing processes, standards and business applications. Simultaneously, a pilot project with one of the business units will be launched with a targeted completion date of month, year.

the "pilot approach" will be used to develop and implement this within the next 2 years throughout the company.

CONCLUSION

Digital's Waste Management Program is a natural extension of the company's commitment to protecting and preserving the environment. That commitment is a key consideration in the company's basic operating procedures and is demonstrated through the programs and projects targeted at reducing, recycling and reusing materials while sustaining the company's economic growth.

The Waste Management goals are ambitious, and the results are by no means guaranteed. What the program aims for is steady, consistent progress. ~~Some years may be better than others, and~~ the program's first 18 months has been most promising; 1991 will yield results to the next level

Given these challenges, Digital has set several Waste Management priorities for the next five years. These include:

- Continued research and development work on and investment in recycling processes for materials that present an environmental risk. The current efforts on plastics and glass recycling are examples. ← regardless of risk.
- The application and development of information technology tools to assist in the development and implementation of a consistent process for the composition and disposition of the company's products and components.
- Addressing the disposition of a product at the design stage rather than at end-of-life by identifying and incorporating waste streams into design and manufacturing processes.
- Integrating waste management practices into every employee's day-to-day work environment. Employee participation at all levels and all ~~geographies~~ countries in which the company does business.
- Setting waste management standards that are environmentally-sound, as well as consistent with current

we really want to lead regs - ie anticipate & be proactive

worldwide environmental laws and regulations.

- Work with industry groups, other companies and suppliers to encourage the adoption of waste management and pollution prevention practices that will have a positive impact on the world environment.

To learn more about Digital's Waste Management Program and the programs described in this report write the Waste Management Program Office, address.

11/3 VERSION

John C. Letter

In the past, Digital has focused mainly on the disposal of waste to meet or exceed the environmental standards set by governments. Today, Digital is focusing on source reduction -- don't build it or buy it, if it isn't needed.

ISN'T the focus really to find ways to build that minimize waste generation?

Over the years, many Digital sites have done an excellent job of dealing with waste and environmental issues, but their activities were largely separate and local. My role, as the Corporate Waste Management program manager, is to integrate these activities, and identify new areas of opportunity for source reduction.

The complexity of doing business on a global basis coupled with the current quantity and diversity of government regulations has now reached the point where a tighter degree of coordination is needed to ensure Digital is doing the right thing in all of its locations throughout the world.

One of the biggest challenges in achieving this integration is promoting behavior change about waste throughout the corporation. The program must build awareness, concern, processes and habits that make waste management a routine part of Digital's business operations.

to improve ?

Fortunately, Digital has many enthusiastic employees who are working ~~for~~ site waste reduction programs. I receive notes daily from empolyees asking, "How can I help?" How successful Digital is at channeling this momentum, and, truly achieving widespread employee involvement, will be a key ingredient to the successful implementation of the program.

When people start becoming more aware of waste across an entire site -- in terms of office supplies, lights and power -- waste management can truly be seen as good business practice with tangible evidence of cost avoidance at the bottom line.

A key tenet of Digital's seven-point environmental policy is "We shall conserve natural resources." It is part of Digital's EarthVision -- the goals the company ~~'s~~ seeks to achieve to protect the environment~~ally~~. EarthVision is the waste management program's vision to implement a world-class waste management program. It will take time and a lot of hard work, but Digital is prepared to invest in the future benefits such programs will provide to the global environment.

INTRODUCTION

Digital is committed to taking an active role in addressing environmental issues. To this end, Digital instituted a formal Waste Management Program early in 1988. The program, under the direction of senior management, seeks to reduce the generation of waste at the source in our worldwide facilities through cost-effective changes in process technologies and materials usage.

Early in 1988, when the program began, Digital disposed of an estimated 125 million pounds of waste per year, at a cost of approximately $500 million. At that time, the company set an overall goal to reduce disposal volumes by 50% in five years.

Digital is proud to report that in the program's first 18 months, it has made significant progress toward this end. On the following pages the waste management programs and projects that have enabled Digital to effectively reduce waste through environmentally sound practices are described.

Digital is particularly proud of the work it has done in the areas of packaging, energy management and plastics recycling. With these programs the company has been able not only to reduce current usage, but to look ahead and initiate proactive research and development work that will decrease and, in certain areas eliminate, usage of materials that would otherwise end up in

already overburdened landfills.

Central to the waste management program is its integration into the company's business practices. Waste management is good business. It can only be achieved if it is integrated into the worldwide environment of all employees.

Throughout Digital, many committed employees, both within and outside the environmental area, have worked to implement not only the formal waste reduction programs described ~~on~~ in the following pages, but also their own innovative projects.

It is perhaps the program's biggest challenge to foster such employee involvement. Only when every employee considers new ways to reduce waste, recycle materials and substitute safer materials for those that could pose a potential environmental ~~risk~~ threat can Digital truly achieve a world-class waste management program.

Although Digital has made major inroads on several key waste management issues, there is still much work to be done. In many areas the answers are not easy. They will require time and extensive investment. Digital accepts this challenge, and through its employees, will continue to build on its waste management accomplishments to fulfill ~~it~~ its long-term commitment to responsible environmental citizenship.

PACKAGING PROGRAM

CHALLENGE

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations represents approximately 27,000 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, among Digital and its trading partners on packaging related expenses (manufacturing and distribution process, materials and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective.

SOLUTION

Digital initiated a corporate-wide Packaging Waste Management Program to reduce waste and its ~~resulting~~ associated cost in 1989. The program addresses all aspects of packaging ~~related~~ material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

The program is composed of projects focused on several areas of packaging waste management. It complements existing efforts, and provides a forum for packaging engineering organizations, as well as for individuals within manufacturing and distribution sites, to ~~transfer and~~ promote new ideas and information exchange on reusable packaging and alternative materials.

Specific projects fall into several categories that include, but are not limited to: packaging recycling, reusable packaging, source reduction, elimination of Chlorofluorocarbon(CFC)-processed packaging materials, alternative materials usage.

RESULTS

- To date, the rate of packaging waste from Digital operations going to landfills has been reduced by 250 tons annually.
- To date, a reduction of $1.6 million for overall packaging costs through pilot projects such as reusable packaging for shipping products between facilities (yielded $476,000 savings annually) and redesigning product packaging for material and cost reduction (one project, the redesign of a disk drive pack, has yielded $120,000 savings annually).
- Reduction of 150,000 cubic feet of dunnage per year by using wadded paper (which can be ~~disposed of through recycling~~ recycled) instead of flowable plastic throughout our major operations.
- Completed several source reduction package design pilot projects that have resulted in significant material usage reductions. Examples include 66% reduction in cubic space occupied on redesign of mouse package; 13% reduction in cubic space occupied by redesign of workstation package; 26% reduction in cubic space occupied by redesign of disk drive package. ****Larry, why can't we just say "reduced package size by 66% or 13% instead of cubic space occupied; better yet can we say reduced materials used by xx%*****
- Elimination of the molded foam and foamed-in-place CFC-processed packaging materials for Digital manufactured products.

Isn't there more to this?

FUTURE PLANS

The overall goal of the packaging program is to eliminate 5,400 tons of packaging ~~disposal~~ disposed of annually and thereby decrease packaging costs by $30 million by 1993. To achieve this goal, several strategies are

currently are being implemented.

do we mean "of a packaging waste reduction program..."?

These include mobilizing employees in geographic areas and sites to support and begin execution of program during 1991, establishing a pilot project for outbound reusable packaging and expanding current efforts during the next two years through aggressive goal setting and ownership by business units.

ENERGY MANAGEMENT PROGRAM

Ann - electricity also uses fossil fuels, natural gas - we just don't do the burning.... maybe we should phrase last 2 lines a little differently

CHALLENGE

Digital facilities spend approximately $150,000,000 worldwide for energy annually. The primary source of this energy is electricity (used for lighting, computers, air conditioning, motors, pumps, etc.) with smaller amounts of natural gas and fuel oil providing energy for heating.

For several years energy conservation has been a key issue not only in the United States, but also around the globe. More and more scientific evidence supports the negative impact on the environment of burning fossil fuels. In addition, the costs of those fuels have continued to rise. Businesses and individuals alike need to improve efficiency and decrease fuel usage.

SOLUTION

Digital has had an energy management program in place since 1972. The program's continuing goal is to eliminate waste and make cost-effective use of energy resources. Specific projects include, but are not limited to:

- Installation of energy management systems in 42 U.S. Digital facilities. These systems employ cost-effective energy technology such as high efficiency lighting systems, environmental control systems, heat exchangers and power factor correction equipment.

- Participation in load management programs sponsored by utility companies. Load management programs work to reduce consumption, thereby reduce the need to generate more electricity.

- In conjunction with utility companies, the development and implementation of cost-effective rebate programs.

- Conduct pilot programs in Digital facilities, such as the high-efficiency, dimable fluorescent light fixture project, to test new energy management products and technologies.

- ~~Offer~~ an annual two-day energy management workshop/seminar for Digital Facilities management to exchange the latest information on energy management techniques and equipment.

- Institute an Energy Investment Program that provides funding to Digital facilities to implement energy management programs.

- Co-sponsor visits by local utility companies to Digital facilities to make energy conservation presentations to employees. The presentations provide information on energy-efficient hardware for the home, home energy audits procedures and examples of energy saving projects that can be implemented in the home.

RESULTS

- 12,900,000 kilowatt hours of electricity is saved annually from Energy Investment Program projects. Specific examples of projects include:

  -- a lighting upgrade program at Digital's Phoenix, Arizona facility that decreased electricity usage by 1,400,000 kilowatt hours annually

  -- installation of an energy management system at Digital's Springfield, Massachusetts facility that reduced usage by 2,160,000 kilowatt hours annually

  -- upgrade of an air compressor system at Digital's Andover facility that reduced usage by 1,280,000 kilowatt hours annually.

- 5,825,000 kilowatt hours of electricity is saved annually through participation in the Massachusetts Electric Utility Rebate Program.

- Test results from the high-efficiency, dimable fluroescent light fixture pilot program indicate a reduction of 60% energy consumption is achievable by employing this technology.

- Digital's reduction of approximately 18,725,000 kilowatt hours of electricity annually yields other environmental benefits such as eliminating the need for 30,000 barrels of oil or not producing approximatly 31,000,000 pounds of carbon dioxide.

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program, particularly in the areas of implementing energy management programs in all Digital facilities, and the testing of new energy management products and technologies. The program's overall goal is to have no growth in energy usage and, where possible, reduce current usage.

Specific projects include expanding use of high-efficiency lighting systems throughout all Digital facilities; testing alternative methods for running overall facility air conditioning units and modification of existing computer room air conditioning systems to decrease energy consumption; reduction, and where possible, elimination of facility perimeter lighting when adequate day lighting is available.

In addition, efforts to educate our employees about home and work energy-efficient practices will be expanded.

CFC PROGRAM

PROBLEM

Scientific evidence has strongly indicated that chloroflurocarbons (CFCs) are destroying the protective ozone layer that shields the earth from harmful ultraviolet radiation. Like most computer and electronics companies, Digital uses CFCs as a cleaning solvent in its manufacturing processes.

Digital is currently faced with a major challenge to reduce its worldwide usage of CFCs by 85% by the year 1995. This goal is consistent with the worldwide phase-out efforts driven by the Montreal Protocol (an international treaty, ratified in 1987 by 24 nations including the United States, that calls for a cut in the production and consumption of CFCs).

SOLUTION

For several years Digital has been working with other electronics companies on the CFC problem. Specific projects include, but are not limited to:

In 1986, Digital chaired a CFC Task Force established by the American Electronics Association (AEA) Environmental Committee. The Task Force worked with the U.S. State Department and the U.S. Environmental Protection Agency to formulate the U.S. positions

that were later used in the development of the Montreal Protocol.

In June of 1988, Digital instituted a worldwide CFC Policy to "reduce immediately, and where possible, to eliminate the company's use of CFCs." This policy represents a company-wide commitment to do everything possible to eliminate the use of CFCs within Digital. Concurrently, a CFC Task Force composed of representatives from the major users within Digital was formed to coordinate implementation of the phase-out policy.

Individual Digital employees also have played visible roles both as initiators of research and development activities and as advisors to public policy forums. For example, Leo Lambert, who spearheaded the transition in Digital ten years ago to water-based cleaning systems for printed circuit board modules, currently is an advisor to the United Nations Environment Programme.

Research and development activities based on Mr. Lambert's seminal work on water-based cleaning systems continue, and currently are targeted at understanding how to apply this process to other types of manufacturing processes that use CFC solvents.

Most recently, Digital joined the Industry Cooperative for Ozone Layer Protection (ICOLP). The cooperative is a joint venture between the U.S. Environmental Protection Agency and several multinational companies. Its purpose is to exchange information

and technology for the worldwide reduction of CFC usage in the electronics industry.

RESULTS

- Developed a water-based cleaning process to replace the use of CFC cleaning solvents in the manufacture of surface-mount printed circuit board modules, and offered process specifications to ICOLP to distribute free of charge to the electronics industry.
- Reduced CFC-usage by 50% in 1989 at storage manufacturing facility in Kaufbeuren, Germany by the installation of a recycling system. Sister facility in Colorado Springs is in the process of installing the same system resulting in similar decrease.
- Digital's Shrewsbury, Massachusetts (type of facility) manufacturing facility 100% CFC-free in 1990.
- Use of CFC-processed packaging will be phased out as of the end of the year.
- The use of halon as a fire suppressant is being replaced by carbon dioxide where possible.
- The practice of releasing halon during equipment testing has been discontinued.

FUTURE PLANS

Digital's goal is to eliminate CFC usage from its manufacturing facilities. Initially, the company focused on establishing good maintenance procedures and recycling processes. Future efforts will focus on increased research and development on alternatives.

CFC usage presents an ongoing problem that will not be solved quickly or easily. Although CFC elimination is a high priority for Digital, CFCs are used for many different purposes and their total elimination will not occur immediately. The development of

non-CFC products and the design of new processes that do not require CFCs will take time and will require extensive investment.

mention that development of many alternatives (eg refrigerants) outside of Digitals hands!

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills.

Landfills as a disposal method are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, and are projected to rise to approximately $350 to $500 per ton by the mid-90s.

SOLUTION

Digital instituted a Plastics Recycling Project early in 1990. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives have been established.

Digital's short term objective was with

In the short term, an objective to eliminate the current plastics inventory was established. Working a major supplier, a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic was then ground up and shipped to the suppliers' recycling group.

isolate

In the interim period, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This would enable future processing of the material.

For the long term, efforts are currently in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in current products and other product development areas.

RESULTS

- Disposal of 100,000 pounds of plastic this year through the decomination process instead of using landfills.
- Reduction of current plastic inventory by 25% through a granulation process.
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into test samples of a product that are currently being evaluated. It is anticipated that the company will soon be able to specify a mixture of recycled and new resins as acceptable for the manufacture of products.

FUTURE PLANS

Research and development funding has been appropriated in several areas for use during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins, the effect of multiple recylcing on resin characteristics, and the development and testing of new applications for recycled resins.

In addition, to enhance sorting techniques, a process to imprint plastics identifiers on each product part is being piloted. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces costs.

RECYCLING PROGRAM

CATHODE RAY TUBES (CRTs)

NB: most of industry treats as non-hazardous

CHALLENGE

Cathode Ray Tubes (the major key component of Video Display Terminals) are commonly disposed of throughout the industry in hazardous waste landfills. Increasing environmental concerns in conjunction with more stringent regulatory standards indicate the limitation of these types of landfills. Environmentally sound alternative methods need to be identified and implemented.

this disposal method

SOLUTION

A project team was formed to develop a short and long term strategy for the disposal of CRTs. The project goal was to identify methods for recycling CRTs, thereby eliminating landfill disposition and reducing associated costs. Use of landfills was deemed an unacceptable long-term option.

The team explored several alternate methods and established prorities. One of the top priorities identified was to explore video display terminal (VDT) reuse/refurbishment/resale. Working in conjunction with the company's Property Disposition Centers, a sorting process is being established. Those VDTs in good working order will be earmarked for internal use, charitable donations or possible resale to equipment

brokers.

those CRTs that can not be reused or recycled,

For ~~the long term~~, monochrome CRT recycling into a higher-or-lower level glass product was identified as an ~~appropriate~~ preferred alternative.

Work is currently underway with a glass manufacturer and preprocess company (a company that cleans the interior glass tube) to develop a monochrome CRT recycling process that will allow the glass component to be recycled ~~to~~ into a higher-or lower-end glass product.

what does this mean?

RESULTS

- Pilot project for CRT disassembly and treatment (cleaning of the interior glass tube) ~~completed~~ close to completion
- Pilot project to reprocess glass into a higher-or lower-level glass products completed.

no it's not

- Based on the results of these pilots, a solution for monochrome CRT recycling is targeted for the end of the calendar year.

↘ too early

FUTURE PLANS

The initial focus of the CRT recycling program is aimed at the monochrome product. This is due to the consistency across the industry of monochrome glass. The chemistry of color glass varies widely. Testing for color glass will commence after the monochrome glass process have been proven out in volume.

you never explain what "monochrome means.

RECYCLING

PAPER PROGRAM

CHALLENGE

Approximately 15 million pounds of paper worldwide is disposed of by Digital's employees per year. As an environmentally-responsible company, sending this waste to already overburdened landfills or incinerators are unacceptable options. The short-and-long term effects on the environment are too high.

Digital understands the importance of source reduction and recycling programs as key elements in managing its "paper trail."

SOLUTION

Digital has had paper recycling programs in many of its facilities for the past ten years. Implementation of a corporate-wide paper recovery/recycling program is currently underway. The program advocates use of a "full circle" approach, supporting the Reduce, Reuse and Recycle tenets of good waste management practices.

The circle's starting point is to provide employees with dual wastebaskets, which enables source separation at the point of generation. Next, source reduction practices, such as making two-sided copies, routing documents to appropriate parties versus each party getting its own copy and changing printer options to eliminate burst and feeder pages, are encouraged through employee communication and education projects.

To complete the circle, Digital encourages the specification and purchase of recycled products, such as all types of office supply paper (e.g., bond, copy, fax, note, computer), and other basic office supplies, including file and hanging folders, trash bins, rest room supplies, etc.

RESULTS

- Year-to-date figures for 1990 indicate that approximately xxxx pounds of paper have been recycled, yielding a year to date cost avoidance of approximately $xxxxxxx
- 80% of U.S. Digital Manufacturing sites have implemented paper recycling programs
- Re-routing the amount of paper disposed of by Digital employees yearly from the waste stream and into the recycling stream could conserve approximately 25,000 cubic yards of landfill space

FUTURE PL@NS

The goal of the corporate-wide paper recovery/recycling program is to have 100% compliance throughout all Digital facilities. To achieve this goal, a cross-functional committee was formed earlier this year to integrate current and future paper recycling programs throughout the company.

The committee's focus is to identify, develop and implement programs to reduce paper consumption through source reduction and to incorporate the purchasing of goods made from recycled waste

paper into daily purchasing decisions.

Ann -
I want to talk about the status of this program with you.

Security

RECYCLING PROGRAM

BOARD/COMPONENT PROGRAM

CHALLENGE

Printed circuit boards and ~~the~~ components ~~embedded on them~~ are commonly disposed of throughout the industry through a variety of methods. Many end up in landfills and incinerators. A disassembly method that focussed on recycling, reuse and reclamation would decrease dependency on landfills and ~~provide~~ a more environmentally ~~efficient~~ approach.

SOLUTION

A project team was assigned to assess Digital's current printed circuit board disassembly and disposal process. The group identified several methods that were currently being used and developed a an approach to standardize environmentally efficient programs.

Initial efforts focussed on generic components derived from the disassemby process. Recycling through secondary markets was identified as the preferred method and an implementation process was instituted.

Next, once disassembled, the group identified reclamation as an ~~effective approach to disposing of the boards~~. The third stage of the program addressed excess and obsolete new components. Based on

results of the generic component recycling program, recycling through secondary markets was identified as preferable to scraping or landfilling.

Ann -
let's talk about
use of the
word "recycle"

RESULTS

- By the end of the year Digital will have disposed of 100,000 printed circuit boards through recycling of generic components and reclamation efforts instead of shipping them to a landfill or incinerator.
- Several hundred thousand excess or obsolete new components will be recycled through secondary markets.
- Cost savings of approximately $10,000 by decreasing usage of standard landfill and incerator disposal processes.

FUTURE PLANS

Future programs for printed circuit board dissasembly and disposal are focussed on research for alternative methods for the disassembly process, and recovery of all metals from the boards.

In addition, Digital is pursuing the reuse internally of its proprietary components to further implement environmentally efficient practices.

PROPERTY DISPOSITION CENTERS

CHALLENGE

In 1989 Digital Equipment Corporation processed approximately 18 million pounds of excess and obsolete equipment (that included furniture, outdated software, field returns, customer trade-ins and returns, capital equipment and excess or obsolete inventories). The process that was used at that time needed standardization.

SOLUTION

A small group was formed to analyze the existing process and provide recommendations for improvement. The team evaluated alternatives to identify a process that would ~~insure~~ security ~~of material through~~ the disposition process ~~and would through disassembly to the commodity (component) level,~~ use an environmentally proactive approach to the get maximum amount of recovery dollars.

The group's recommendation was to legitimize the disposition business with Profit and Loss ownership and responsibility. To accomplish this it was determined that all disposition operations would be consolidated into two key centers, and that all equipment deemed excess, obsolete or idle would be processed only

through the Property Disposition Centers (PDCs). Digital currently owns and operates two PDCs in the United States -- one in the northeast and one in the west. The Centers provide for the disposition of excess and obsolete equipment from all U.S. area operations, and when applicable, from other geographies.

RESULTS

- Consolidation of disposition locations from five using over one million square feet of space ~~into~~ to two using approximately 75,000 square feet.
- $3.8 million cost savings by year-end through consolidation of disposition locations.
- Established an audit and certification process that effectively incorporates sound environmental and security procedures ~~to~~ into the disposition process.

FUTURE PLANS

The PDC program has a twofold goal over the next year. One is to continue streamlining its current operation to achieve cost efficient and environmentally sound disposition of Digital's excess/obsolete equipment. The second is to effectively incorporate other applicable waste reduction programs into its framework. For example, several of the recycling programs, such as the board/component, plastics and CRT projects, are being integrated into the operation on a pilot project basis.

In addition, the PDCs are integrally linked to the Waste Management Group's initiative to develop and implement a consistent process for the composition and disposition of Digital's products and components.

MATERIAL IDENTIFICATION PROGRAM

CHALLENGE

Digital Equipment Corporation has a range of efforts in place to address specific component or product recycling and reclamation issues. These efforts would be more effective if a consistent well-defined process for identifying the composition and disposition of the company's products and components were in place.

SOLUTION

A project team was established to develop a process and an information technology system/tool that would improve the company's ability to reuse, recycle, resell or reclaim its products and components in an environmentally sound and cost-effective manner.

RESULTS

The initial focus of the project team was to identify the scope of information needed and the user community that would need to access the information. Next, source and user communites would have to be interviewed to evaulate the ~~viability~~ applicability of the tool to their respective businesses.

To date, preliminary data element fields have been identified, as have the initial user communities. In addition, source and user communities have been interviewed and the appropriate information captured.

FUTURE PLANS

The next phases of this program involve developing plans throughout the corporation for the integration of required process changes into existing processes, standards and business applications. Simultaneously, a pilot project with one of the business units will be launched with a targeted completion date of month, year.

CONCLUSION

Digital's Waste Management Program is a natural extension of the company's commitment to protecting and preserving the environment. That commitment is a key consideration in the company's basic operating procedures and is demonstrated through the programs and projects targeted at reducing, recycling and reusing materials while sustaining the company's economic growth.

The Waste Management goals are ambitious, and the results are by no means guaranteed. What the program aims for is steady, consistent progress. Some years may be better than others, ~~and~~ Certainly, the program's first 18 months ~~has~~ have been most promising.

Given these challenges, Digital has set several Waste Management priorities for the next five years. These include:

- Continued research and development work on and investment in recycling processes for materials that present a ~~environmental risk~~ threat to the potential. The current efforts on plastics and glass recycling are examples.
- The application and development of information technology tools to assist in the development and implementation of a consistent process for the composition and disposition of the company's products and components.
- Addressing the disposition of a product at the design stage rather than at end-of-life by identifying and incorporating waste streams into design and manufacturing processes.
- Integrating waste management practices into every employee's day-to-day work environment, and ensuring Employee participation at all levels and all geographies in which the company does business.
- Setting waste management standards that are environmentally-sound, as well as consistent with current

worldwide environmental laws and regulations.

- Work with industry groups, other companies and suppliers to encourage the adoption of waste management and pollution prevention practices that will have a positive impact on the world environment.

To learn more about Digital's Waste Management Program and the programs described in this report write the Waste Management Program Office, address.

PROJECT PROPOSAL

PROJECT: 1990 Waste Management Report

OBJECTIVE: To provide a summary of the company's waste reduction programs and activities.

AUDIENCE: Potential investors/current investors; media (print and broadcast); local, state, Federal government regulatory agencies; customers/potential customers; environmental groups; community groups.

RATIONALE: Concerns/questions about Digital's waste policies, practices and programs have increased dramatically over the past year. These inquiries have come from a variety of sources, including investor groups, environmental groups, the media, government agencies and customers. The circulation of inconsistent or inaccurate information about these programs can put the corporation at risk. Given the volatility of these issues, it is strongly recommended that a singular piece (i.e. waste management report) be developed that would provide consistent, accurate information about Digital's waste programs. The report could be used as a factual piece that would address all the above identified audiences.

Isn't rationale also to promote Digital's commitment to good env'l practices?

PROPOSED FORMAT: The report would be divided into three sections:

- Introduction (Vision, Purpose, Overview Goals)
- Program Descriptions (Problem, Solution, Results)
- Future Plans (Next Steps)

(complete, detailed format outline available)

TIMETABLE: By the week of October 22, an edited version of the document will be circulated for a final review. Final copy from this review is due October 29; after which the typesetting/ mechanical phase will be activated; and the finished piece available by January 15, 1991.

RUNSIZE/ COST: 30,000 copies @45K

INTRODUCTION

Digital is committed to taking an active role in addressing environmental issues. To this end, Digital instituted a formal Waste Management Program early in 1988. The program, under the direction of senior management, seeks to reduce the generation of waste at the source in our worldwide facilities through cost-effective changes in process technologies and materials usage.

Early in 1988 when the program began, Digital disposed of an estimated 125 million pounds of waste per year, at a cost of approximately $500 million. At that time, the company set a overall goal to reduce disposal volumes by 50% in five years.

Digital is proud to report that in the program's first 18 months, it has made significant progress toward this end. On the following pages the waste management programs and projects that have enabled Digital to effectively reduce waste through environmentally sound practices are described.

Digital is particularly proud of the work it has done in the areas of packaging, energy management and plastics recycling. With these programs the company has been able not only to reduce current usage, but to look ahead and initiate proactive research and development work that will decrease and, in certain areas eliminate, usage of materials that would otherwise end up in

already overburdened landfills.

Central to the waste management program is its integration into the company's business practices. Waste management is good business. It can only be achieved if it is integrated into the worldwide environment of all employees.

Throughout Digital, many committed employees both within and outside the environmental area, have worked to implement not only the formal waste reduction programs described on the following pages, but their own innovative projects.

It is perhaps the program's biggest challenge to foster such employee involvement. Only when every employee considers new ways to reduce waste, recycle materials and substitute safer materials for those that could pose a potential environmental risk can Digital truly achieve a world-class waste management program.

Although Digital has made major inroads on several key waste management issues, there is still much work to be done. In many areas the answers are not easy. They will require time and extensive investment. Digital accepts this challenge, and through its employees, will continue to build on its waste management accomplishments to fulfill it, long-term commitment to responsible environmental citizenship.

Coordinator: Cindy Mahan

PROJECT SCOPE INFORMATION:

Marketing Opportunity:	A variety of environmental marketing initiatives are being instituted throughout the corporation. A fundamental question that each of these initiatives will encounter is, "What is Digital doing about waste reduction/ environmental issues?" This program will be an effectual way to address this question.
Audience:	External/Customer audience. To be distributed by: Investor Relations, Community Relations, Public Relations/Media Relations and Waste Management Groups.
Project Format:	9"x 12" folder multiple 8-1/2"x11" insert programs, cover letter, orginization chart and terms statement.
Project Quantity:	10,000, 20,000, or 40,000 units
Project Distribution	Worldwide
Concept/Design treatment:	Utilize the same specifications on the "Earth Vision" campaign including: recycled paper, Earth Vision graphic, color scheme and typography.

SCHEDULE:

5/9/91	Preliminary meeting
5/20/91	Design and development begins
6/3/91	Design presentation to client
6/7/91	Design approval
6/10/91	Writer assigned
7/1/91*	Final copy to designer
7/2/91*	Copy editing
7/8/91*	Final copy to typeset
7/10/91*	Mechanical preparation
7/11/91*	Client sign-off
7/12/91*	To print
8/2/91*	Delivery

*TENTATIVE

BUDGET ESTIMATE SUMMARY:

The following proposed budget is an estimate based on the scope, specifications, and quantities as currently understood and defined in this project plan. Any change in scope, specifications and quantities will affect the proposed budget and/or schedule. Client will be notified electronically of such changes that affect the budget or schedule. Client approval of changes is required for work to continue.

Project management/ meetings and travel:	$ 2000.00
Design and development:	$ 1652.00
Typesetting:	$ 2300.00
Photostats:	$ 150.00
Mechanical preparation:	$ 1000.00
Print coordination:	$ 520.00
Total estimate before printing:	$ 7622.00

Printing: Folder: 10,000 = $ 7564.00

20,000 = $11965.00
40,000 = $20434.00

Insert programs: 10,000 ea. of 8 programs = $ 7100.00
20,000 ea. of 8 programs = $10500.00
40,000 ea. of 8 programs = $17900.00

Cover letter, orginization chart and terms:
10,000 ea. of 3 = $ 2600.00
20,000 ea. of 3 = $ 3600.00
40,000 ea. of 3 = $ 5100.00

Insertion cost: 10,000 ea. of 11 pieces = $ 2600.00
20,000 ea. of 11 pieces = $ 4800.00
40,000 ea. of 11 pieces = $ 6500.00

Print total for 10,000 programs = $19864.00

Print total for 20,000 programs = $30865.00

Print total for 40,000 programs = $49934.00

Grand total for all production services:
10,000 = $27486.00

20,000 = $38487.00

40,000 = $57556.00

After June 28 balance of work to be done with cost estimates:

Design:	$ 300.00
Project management etc.:	$ 750.00

echanical preparation: $1000.00

rint coordination: 300.00

Total: $2350.00

egards,
en

PACKAGING PROGRAM

CHALLENGE

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations represents approximately 27,000 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, among Digital and its trading partners on packaging related expenses (manufacturing and distribution process, materials and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective.

SOLUTION

Digital initiated a corporate-wide Packaging Waste Management Program to reduce waste and its resulting cost in 1989. The program addresses all aspects of packaging related material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

The program is composed of projects focused on several areas of packaging waste management. It complements existing efforts, and provides a forum for packaging engineering organizations, as well as individuals within manufacturing and distribution sites, to transfer and promote new ideas and information on reusable packaging and alternative materials.

Specific projects fall into several categories that include, but are not limited to: packaging recycling, resuable packaging, source reduction, elimination of Chlorofluorocarbon(CFC)-processed packaging materials, alternative materials usage.

RESULTS

- To date, the rate of packaging waste from Digital operations going to landfills has been reduced by 250 tons annually.
- To date, a reduction of $1.6 million for overall packaging costs through pilot projects such as reusable packaging for shipping products between facilities (yielded $476,000 savings annually) and redesigning product packaging for material and cost reduction (one project, the redesign of a disk drive pack has yeilded $120,000 savings annually).
- Reduction of 150,000 cubic feet of dunnage per year by using wadded paper (which can be disposed of through recycling) instead of flowable plastic throughout our major operations.
- Completed several source reduction package design pilot projects that have resulted in significant material usage reductions. Examples include 66% reduction in cubic space occupied on redesign of mouse package; 13% reduction in cubic space occupied by redesign of workstation package; 26% reduction in cubic space occupied by redesign of disk drive package. ****Larry, why can't we just say "reduced package size by 66% or 13% instead of cubic space occupied; better yet can we say reduced materials used by xx%*****
- Elimination of the molded foam and foamed-in-place CFC-processed packaging materials for Digital manufactured products.

FUTURE PLANS

The overall goal of the packaging program is eliminate 5,400 tons of packaging disposal and thereby decrease packaging costs by $30 million by 1993. To achieve this goal, several strategies are

currently being implemented.

These include mobilizing employees in geographic areas and sites to support and begin execution of program during 1991, establishing a pilot project for outbound reusable packaging and expanding current efforts during the next two years through aggressive goal setting and ownership by business units.

ENERGY MANAGEMENT PROGRAM

CHALLENGE

Digital facilities spend approximately $150,000,000 worldwide for energy annually. The primary source of this energy is electricity (used for lighting, computers, air conditioning, motors, pumps, etc.) with smaller amounts of natural gas and fuel oil providing energy for heating.

For several years energy conservation has been a key issue not only in the United States, but also around the globe. More and more scientific evidence supports the negative impact on the environment of burning fossil fuels. In addition, the costs of those fuels have continued to rise. Businesses and individuals alike need to improve efficiency and decrease fuel usage.

SOLUTION

Digital has had an energy management program in place since 1972. The program's continuing goal is to eliminate waste and make cost-effective use of energy resources. Specific projects include, but are not limited to:

- Installation of energy management systems in 42 U.S. Digital facilities. These systems employ cost-effective energy technology such as high efficiency lighting systems, environmental control systems, heat exchangers and power factor correction equipment.

- Participation in load management programs sponsored by utility companies. Load management programs work to reduce consumption, thereby reduce the need to generate more electricity.

- In conjunction with utility companies, the development and implementation of cost-effective rebate programs.

- Conduct pilot programs in Digital facilities, such as the high-efficiency, dimable fluorescent light fixture project, to test new energy management products and technologies.

- Offer an annual two-day energy management workshop/seminar for Digital Facilities management to exchange the latest information on energy management techniques and equipment.

- Institute an Energy Investment Program that provides funding to Digital facilities to implement energy management programs.

- Co-sponsor visits by local utility companies to Digital facilities to make energy conservation presentations to employees. The presentations provide information on energy-efficient hardware for the home, home energy audits procedures and examples of energy saving projects that can be implemented in the home.

RESULTS

- 12,900,000 kilowatt hours of electricity is saved annually from Energy Investment Program projects. Specific examples of projects include:

  -- a lighting upgrade program at Digital's Phoenix, Arizona facility that decreased electricity usage by 1,400,000 kilowatt hours annually

  -- installation of an energy management system at Digital's Springfield, Massachusetts facility that reduced usage by 2,160,000 kilowatt hours annually

  -- upgrade of an air compressor system at Digital's Andover facility that reduced usage by 1,280,000 kilowatt hours annually.

- 5,825,000 kilowatt hours of electricity is saved annually through participation in the Massachusetts Electric Utility Rebate Program.

- Test results from the high-efficiency, dimable fluroescent light fixture pilot program indicate a reduction of 60% energy consumption is achievable by employing this technology.

- Digital's reduction of approximately 18,725,000 kilowatt hours of electricity annually yields other environmental benefits such as eliminating the need for 30,000 barrels of oil or not producing approximatly 31,000 pounds of carbon dioxide.

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program particularly in the areas of implementing energy management programs in all Digital facilities, and the testing of new energy management products and technologies. The program's overall goal is to have no growth in energy usage and where possible reduce current usage.

Specific projects include expanding use of high-efficiency lighting systems throughout all Digital facilities; testing alternative methods for running overall facility air conditioning units and modification of existing computer room air conditioning systems to decrease energy consumption; reduction and where possible elimination of facility perimeter lighting when adequate day lighting is available.

In addition, efforts to educate our employees about home and work energy-efficient practices will be expanded.

CFC PROGRAM

PROBLEM

Scientific evidence has strongly indicated that chloroflurocarbons (CFCs) are destroying the protective ozone layer that shields the earth from harmful ultraviolet radiation. Like most computer and electronics companies Digital uses CFCs as a cleaning solvent in its manufacturing processes.

Digital is currently faced with a major challenge to reduce its worldwide usage of CFCs by 85% by the year 1995. This goal is consistent with the worldwide phase-out efforts driven by the Montreal Protocol (an international treaty, ratified in 1987 by 24 nations including the United States, that calls for a cut in the production and consumption of CFCs).

SOLUTION

For several years Digital has been working with other electronics companies on the CFC problem. Specific projects include, but are not limited to:

In 1986, Digital chaired a CFC Task Force established by the American Electronics Association (AEA) Environmental Committee. The Task Force worked with the U.S. State Department and the U.S. Environmental Protection Agency to formulate the U.S. positions

that were later used in the development of the Montreal Protocol.

In June of 1988, Digital instituted a worldwide CFC Policy to "reduce immediately, and where possible, to eliminate the company's use of CFCs." This policy represents a company-wide commitment to do everything possible to eliminate the use of CFCs within Digital. Concurrently, a CFC Task Force composed of representatives from the major users within Digital was formed to coordinate implementation of the phase-out policy.

Individual Digital employees also have played visible roles both as initiators of research and development activities and as advisors to public policy forums. For example, Leo Lambert, who spearheaded the transition in Digital ten years ago to water-based cleaning systems for printed circuit board modules, currently is an advisor to the United Nations Environment Programme.

Research and development activities based on Mr. Lambert's seminal work on water-based cleaning systems continue, and currently are targeted at understanding how to apply this process to other types of manufacturing processes that use CFC solvents.

Most recently, Digital joined the Industry Cooperative for Ozone Layer Protection (ICOLP). The cooperative is a joint venture between the U.S. Environmental Protection Agency and several multinational companies. Its purpose is to exchange information

and technology for the worldwide reduction of CFC usage in the electronics industry.

RESULTS

- Developed a water-based cleaning process to replace the use of CFC cleaning solvents in the manufacture of surface-mount printed circuit board modules, and offered process specifications to ICOLP to distribute free of charge to the electronics industry.
- Reduced CFC-usage by 50% in 1989 at storage manufacturing facility in Kaufbeuren, Germany by the installation of recycling system. Sister facility in Colorado Springs is in the process of installing the same system resulting in similar decrease.
- Digital's Shrewsbury, Massachusetts (type of facility) manufacturing facility 100% CFC-free in 1990.
- Use of CFC-processed packaging will be phased out as of the end of the year.
- The use of halon as a fire suppressant is being replaced by carbon dioxide where possible.
- The practice of releasing halon during equipment testing has been discontinued.

FUTURE PLANS

Digital's goal is to eliminate CFC usage from its manufacturing facilities. Initially, the company focused on establishing good maintenance procedures and recycling processes. Future efforts will focus on increased research and development on alternatives.

CFC usage presents an ongoing problem that will not be solved quickly or easily. Although CFC elimination is a high priority for Digital, CFCs are used for many different purposes and their total elimination will not occur immediately. The development of

non-CFC products and the design of new processes that do not require CFCs will take time and will require extensive investment.

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills.

Landfills as a disposal method, are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, and are projected to rise to approximately $350 to $500 per ton by the mid-90s.

SOLUTION

Digital instituted a Plastics Recycling Project early in 1990. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives have been established.

In the short term, an objective to eliminate the current plastics inventory was established. Working a major supplier, a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic was then ground up and shipped to the suppliers' recycling group.

In the interim period, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This would enable future processing of the material.

For the long term, efforts are currently in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in current products and other product development areas.

RESULTS

- Disposal of 100,000 pounds of plastic this year through the decomination process instead of using landfills.
- Reduction of current plastic inventory by 25% through a granulation process.
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into test samples of a product that are currently being evaluated. It is anticipated that the company will soon be able to specify a mixture of recycled and new resins as acceptable for the manufacture of products.

FUTURE PLANS

Research and development funding has been appropriated in several areas for use during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins, the effect of multiple recylcing on resin characteristics, and the development and testing of new applications for recycled resins.

In addition, to enhance sorting techniques, a process to imprint plastics identifiers on each product part is being piloted. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces costs.

RECYCLING PROGRAM

CATHODE RAY TUBES (CRTs)

CHALLENGE

Cathode Ray Tubes (a key component of Video Display Terminals) are commonly disposed of throughout the industry in hazardous waste landfills. Increasing environmental concerns in conjunction with more stringent regulatory standards indicate the limitation of these types of landfills. Environmentally sound alternative methods need to be identified and implemented.

SOLUTION

A project team was formed to develop a short and long term strategy for the disposal of CRTs. The project goal was to identify methods for recycling CRTs thereby eliminating landfill disposition and reducing associated costs. Use of landfills was deemed an unacceptable long-term option.

The team explored several alternate methods and established prorities. One of the top priorities identified was to explore video display terminal (VDT) reuse/refurbishment/resale. Working in conjunction with the company's Property Disposition Centers a sorting process is being established. Those VDTs in good working order will be earmarked for internal use, charitable donations or possible resale to equipment

brokers.

For the long term, monochrome CRT recycling into a higher-or-lower level glass product was identified as an appropriate alternative.

Work is currently underway with a glass manufacturer and preprocess company (a company that cleans the interior glass tube) to develop a monochrome CRT recycling process that will allow the glass component to be recycled to a higher-or lower-end glass product.

RESULTS

- Pilot project for CRT disassembly and treatment (cleaning of the interior glass tube) completed.
- Pilot project to reprocess glass into a higher-or lower-level glass products completed.
- Based on the results of these pilots, a solution for monochrome CRT recycling is targeted for the end of the calendar year.

FUTURE PLANS

The initial focus of the CRT recycling program is aimed at the monochrome product. This is due to the consistency across the industry of monochrome glass. The chemistry of color glass varies widely. Testing for color glass will commence after the monochrome glass process have been proven out in volume.

RECYCLING

PAPER PROGRAM

CHALLENGE

Approximately 15 million pounds of paper worldwide is disposed of by Digital's employees per year. As an environmentally-responsible company, sending this waste to already overburdened landfills or incinerators are unacceptable options. The short-and-long term effects on the environment are too high.

SOLUTION

Digital has had paper recycling programs in many of its facilities for the past ten years. Implementation of a corporate-wide paper recovery/recycling program is currently underway. The program advocates use of a "full circle" approach, supporting the Reduce, Reuse and Recycle tenets of good waste management practices.

The circle's starting point is to provide employees with dual wastebaskets, which enables source separation at the point of generation. Next, source reduction practices, such as making two-sided copies, routing documents to appropriate parties versus each party getting its own copy or changing printer options to eliminate burst and feeder pages are encouraged through employee communication and education projects.

To complete the circle, Digital encourages the specification and purchase of recycled products, such as all types of office supply paper (e.g., bond, copy, fax, note, computer), and other basic office supplies such as file and hanging folders, trash bins, rest room supplies, etc.

RESULTS

- Year-to-date figures for 1990 indicate that approximately xxxx pounds of paper have been recycled, yielding a year to date cost avoidance of approximately $xxxxxxx
- 80% of U.S. Digital Manufacturing sites have implemented paper recycling programs
- Re-routing the amount of paper disposed of by Digital employees yearly from the waste stream and into the recycling stream could conserve approximately 25,000 cubic yards of landfill space

FUTURE PL@NS

The goal of the corporate-wide paper recovery/recycling program is to have 100% compliance throughout all Digital facilities. To achieve this goal, a cross-functional committee was formed earlier this year to integrate current and future paper recycling programs throughout the company.

The committee's focus is identify, develop and implement programs to reduce paper consumption through source reduction and to incorporate the purchasing of goods made from recycled waste

paper into daily purchasing decisions.

Security

RECYCLING PROGRAM

BOARD/COMPONENT PROGRAM

CHALLENGE

Printed circuit boards and the components embedded on them are commonly disposed of throughout the industry through a variety of methods. Many end up in landfills and incinerators. A disassembly method that focussed on recycling, reuse and reclamation would decrease dependency on landfills and provide a more environmentally efficient approach.

SOLUTION

A project team was assigned to assess Digital's current printed circuit board disassembly and disposal process. The group identified several methods that were currently being used and developed a an approach to standardize environmentally efficient programs.

Initial efforts focussed on generic components derived from the disassemby process. Recycling through secondary markets was identified as the preferred method and an implementation process was instituted.

Next, once disassembled, the group identified reclamation as an effective approach to disposing of the boards. The third stage of the program addressed excess and obsolete new components. Based on

results of the generic component recycling program, recycling through secondary markets was identified as preferable to scraping or landfilling.

RESULTS

- By the end of the year Digital will have disposed of 100,000 printed circuit boards through recycling of generic components and reclamation efforts instead of shipping them to a landfill or incinerator.
- Several hundred thousand excess or obsolete new components will be recycled through secondary markets.
- Cost savings of approximately $10,000 by decreasing usage of standard landfill and incerator disposal processes.

FUTURE PLANS

Future programs for printed circuit board dissasembly and disposal are focussed on research for alternative methods for the disassembly process, and recovery of all metals from the boards.

In addition, Digital is pursuing the reuse internally of its proprietary components to further implement environmentally efficient practices.

PROPERTY DISPOSITION CENTERS

CHALLENGE

In 1989 Digital Equipment Corporation processed approximately 18 million pounds of excess and obsolete equipment (that included furniture, outdated software, field returns, customer trade-ins and returns, capital equipment and excess or obsolete inventories). The process that was used at that time needed standardization.

SOLUTION

A small group was formed to analyze the existing process and provide recommendations for improvement. The team evaluated alternatives to identify a process that would insure security of material through the disposition process and would through disassembly to the commodity (component) level, use an environmentally proactive approach to the get maximum amount of recovery dollars.

The group's recommendation was to legitimize the disposition business with Profit and Loss ownership and responsibility. To accomplish this it was determined that all disposition operations would be consolidated into two key centers, and that all equipment deemed excess, obsolete or idle would be processed only

through the Property Disposition Centers (PDCs). Digital currently owns and operates two PDCs in the United States -- one in the northeast and one in the west. The Centers provide for the disposition of excess and obsolete equipment from all U.S. area operations, and when applicable from other geographies.

RESULTS

- Consolidation of disposition locations from five using over one million square feet of space into two using approximately 75,000 square feet.
- $3.8 million cost savings by year-end through consolidation of disposition locations.
- Established an audit and certification process that effectively incorporates sound environmental and security procedures to disposition process.

FUTURE PLANS

The PDC program has a twofold goal over the next year. One is to continue streamlining its current operation to achieve cost efficient and environmentally sound disposition of Digital's excess/obsolete equipment. The second is to effectively incorporate other applicable waste reduction programs into its framework. For example, several of the recycling programs, such as the board/component, plastics and CRT projects, are being integrated into the operation on a pilot project basis.

In addition, the PDCs are intregrally linked to the Waste Management Group's initiative to develop and implement a consistent process for the composition and disposition of Digital's products and components.

MATERIAL IDENTIFICATION PROGRAM

CHALLENGE

Digital Equipment Corporation has a range of efforts in place to address specific component or product recycling and reclamation issues. These efforts would be more effective if a consistent well-defined process for identifying the composition and disposition of the company's products and components were in place.

SOLUTION

A project team was established to develop a process and an information technology system/tool that would improve the company's ability to reuse, recycle, resell or reclaim its products and components in an environmentally sound and cost-effective manner.

RESULTS

The initial focus of the project team was to identify the scope of information needed and the user community that would need to access the information. Next, source and user communites would have to be interviewed to evaulate the viability of the tool to their respective businesses.

To date, preliminary data element fields have been identified, as have the initial user communities. In addition, source and user communities have been interviewed and the appropriate information captured.

FUTURE PLANS

The next phases of this program involve developing plans throughout the corporation for the integration of required process changes into existing processes, standards and business applications. Simultaneously, a pilot project with one of the business units will be launched with a targeted completion date of month, year.

CONCLUSION

Digital's Waste Management Program is a natural extension of the company's commitment to protecting and preserving the environment. That commitment is a key consideration in the company's basic operating procedures and is demonstrated through the programs and projects targeted at reducing, recycling and reusing materials while sustaining the company's economic growth.

The Waste Management goals are ambitious, and the results are by no means guaranteed. What the program aims for is steady, consistent progress. Some years may be better than others, and the program's first 18 months has been most promising.

Given these challenges, Digital has set several Waste Management priorities for the next five years. These include:

- Continued research and development work on and investment in recycling processes for materials that present an environmental risk. The current efforts on plastics and glass recycling are examples.
- The application and development of information technology tools to assist in the development and implementation of a consistent process for the composition and disposition of the company's products and components.
- Addressing the disposition of a product at the design stage rather than at end-of-life by identifying and incorporating waste streams into design and manufacturing processes.
- Integrating waste management practices into every employee's day-to-day work environment. Employee participation at all levels and all geographies in which the company does business.
- Setting waste management standards that are environmentally-sound, as well as consistent with current

worldwide environmental laws and regulations.

- Work with industry groups, other companies and suppliers to encourage the adoption of waste management and pollution prevention practices that will have a positive impact on the world environment.

To learn more about Digital's Waste Management Program and the programs described in this report write the Waste Management Program Office, address.

systems and enterprise-wide solutions are also helping world communities in their battle against the effects of pollution.

\sh\Computers Extend a Lifeline to Venice [11.7]

Legendary Venice, the romantic Italian city on the Adriatic Sea, is facing several major environmental problems, from the corrosive air that disfigures its classic statues to the flooding of its lagoon several times a year with polluted waters. Built on pylons, the city is slowly sinking from the deteriorating effects of flooding.

A consortium of industries and the Italian Commission for Nuclear and Alternative Energy Sources (ENEA) are working together to monitor and solve Venice's problems. ENEA is collecting data to draw a detailed map of the Venice lagoon. With data that traces the ebb and flow of tide into the lagoon, scientists can better measure the effect of stopping the flow with the use of floodgates.

ENEA gathered the first set of data describing the air, water, and soil in the lagoon manually. Digital's technical expertise was then enlisted to develop software to manage the data collection more efficiently and in realtime. A MicroVAX system processed the ensuing data, and transferred it to a data center equipped with a VAX 8800 system. The computer then sorted the data into several VAX Rdb/VMS databases. Since its initiation almost two years ago, the Venice clean-up project has expanded to include additional MicroVAX systems, workstations, DECnet software, a VAXcluster system, and a VAX 9000 system.

\sh\NASA Shuttle Studies Atmosphere

In the U.S., scientists are diverting their gaze from the heavens to their computers. The Goddard Space Flight

done

From: MR4DEC::GBLYDENBURGH "Grace @DTN297-3497, MR04-2" 13-MAY-1991 11:11
:43.31
To: ASABET::FULLERTON
CC:
Subj: for your review

From: ICS::STRIFE "In another place and time" 9-May-91 10:01
To: MR4DEC::GBLYDENBURGH
CC: STRIFE
Subj:

From: MR4DEC::GBLYDENBURGH "Grace @DTN297-3497, MR04-2" 9-MAY-1991 07:26
:34.10
To: NM%DANUBE::BUFORD, ICS::STRIFE,PETE,MR4DEC::WICKS,MR4DEC::JEKLUND
CC:
Subj: INSIGHT article for your speedy review

Lagoon
July/August
Grace Blydenburgh

\ah\Habitat at Peril: Digital
Responds with a Plan [25.12]

Over a century ago, smoke spewing from stacks silhouetted against a city's skyline promised growth and prosperity. Times and our sensibilities have changed. Those stacks, mostly muzzled now, remind us of the environmental challenges facing everyone: atmospheric pollution in our cities; acid rain; dying forests; lifeless lakes and rivers; the threat of global warming. Governments, scientists, and industries are confronting these issues on every continent. Can we find solutions fast enough?

Digital declared the environment a key area of corporate responsibility in 1974. Since then, the company has been fulfilling its commitment to the earth in several ways. **Under its "Earth Vision'' policy Digital ** offers innovative products and works in partnership with governments, scientific institutions, and private industry. Digital also actively works with people that are using the company's products to advance environmental knowledge. The Venice Lagoon project and the U.S. government's study of the atmosphere are two such examples.

/sh/Corporate Plan Primes Action [9]

The ''Earth Vision'' **policy** emphasizes conservation of the environment and protection of the safety and health of its employees. One implementation of Earth Vision is Digital's plan to eliminate chlorofluorocarbons (CFCs) from all manufacturing operations by the end of 1994. CFCs, used in the cleaning of printed circuit boards, destroy the earth's ozone layer.

In 1990 Digital introduced an aqueous cleaning technology that eliminates this use of CFCs. This technology is now available, free, to other manufacturers through the Industry Cooperative for Ozone Layer Protection (ICOLP). Over **700** companies have taken advantage of the offer, including some from developing countries, for whom advanced technology is often too expensive.

Recognizing Digital's contribution, the United States ** Environmental Protection Agency (EPA) ** named the company a recipient of the 1990 Stratospheric Ozone Protection Award.

Recycling, designing **to eliminate waste **, and encouraging creative employee solutions are other **programs which support Digital's ''Earth Vision'' policy.** The company is committed to reduce waste disposal volumes by 50 percent within five years. The plethora of recycling bins at Digital plants, stacks of reusable packing materials, and other efforts to conserve resources are tangible evidence. A formal, comprehensive environmental, health, and safety ** evaluation program measures ** the effectiveness of each site's plan for action.

Tidying one's own backyard is an important first step in protecting our environment. But Digital computer

Center in Greenbelt, Maryland, is the home of National Aeronautics and Space Administration's (NASA) Upper Atmosphere Research Satellite (UARS) project. There, beginning this August, two VAX 9000 systems installed by Science Systems and Applications, Inc. (SSAI) will receive and process atmospheric data transmitted by UARS. The purpose of this project is to measure the environmental changes resulting from human activities that affect the Earth's upper atmosphere.

''We chose Digital for the project because of its scientific processing capability, networking strength and **wide** **range** of **compatible** computers for **both** the CDHF and research sites,'' said Andrew Germain, senior engineer at SSAI, based in Seabrook, Maryland. Data collected by the Digital systems will include measurements of the chemical composition, temperature, winds, and energy inputs of the Earth's upper atmosphere. A central data handling facility (CDHF) will transform the raw telemetry data into usable atmospheric measurements, maintain a database on a mass storage subsystem, and communicate results to scientists located at numerous research institutions in the U.S., Canada, and Europe.

1991

NASA has supplied each research site with a compatible Digital system, and connected all remote analysis sites to the CDHF via dedicated and shared lines in a DECnet wide area network. ''We selected the VAX 9000 system because its vector processing capability will handle the massive amounts of data we must process and because it is compatible with our installed hardware and software,'' said Germain. ''The VAX 9000 system's growth potential means we can meet current and projected processing demands without continually adding new systems.''

\sh\Digital Provides Applications Guide [10.7]

To assist businesses and institutions

in finding software that addresses environmental concerns, Digital recently published the Environment Applications Guide. The catalog list software applications that cover geographic information systems (GIS), environmental compliance, monitoring and control, and environmental research.

GIS applications include automated mapping, terrain modeling, remote sensing, geographic and spacial information systems, and image scanning. The Venice lagoon project uses this type of application and is sponsored by both government and industry, key users of such systems.

Environmental compliance applications include safety systems, pollution control, chemical inventory and usage, occupational health and safety, risk management and tracking systems. The monitoring and control of air and water quality, waste management, and land use management comprise still another category of environmental applications. Software that handles both categories concerns the oil, gas, chemical and pharmaceutical industries, plus forest and metal industries, utilities, and contractors.

Environmental research applications include weather forecasting, global change, and oceanography. The NASA project evidences the need for such software. International, national, and regional research centers and universities are other sites that can use this information.

The guide lists over 100 products and 65 vendors worldwide, members of Digital's cooperative marketing, complementary solutions, or independent software vendors.

Digital encourages environmental responsibility by offering a range of products, solutions, and services so that customers can freely choose appropriate solutions. Innovative

information technology,
internal and public education
programs, plus cooperation with
industry and governments, embody
Digital's vision for economic
growth in a sustainable environment.
Its' an open vision Digital invites you
to share.

7
0

them to good use. For every item we can recycle, there will be one less item purchased from our vendors.

Your unused or reusable items may be returned to your office supplies area or deposited in the containers we will place on each floor of the buildings. If you need help with the transport of large quantities of items please call us at x 8670

Please note these materials must be in good usable condition. Examples of such items are:

- 3-ring binders
- Staplers
- Staples
- Pens/pencils
- Post-it pads
- Tape
- Scissors
- Paper clips
- Printer ribbons
- Manila folders
- Slash folders
- Visi markers
- Pendaflex folders
- Tape dispensers
- Interoffice envelopes
- Transparencies
- Push pins
- Staple removers

These are just a few of the items which are reusable. There are, of course, others which could be included. In this small way, we feel we can save Digital thousands of dollars. Please support this program by your participation.

You my find the containers in the following areas:

DSG1-1	In front of Mail Room
" 1-2	Just to the right of Cafeteria's door
" 2-1	Back Lobby hallway
" 2-2	Front lobby at top of landing

Regards,

Greg Edwards
Facilities

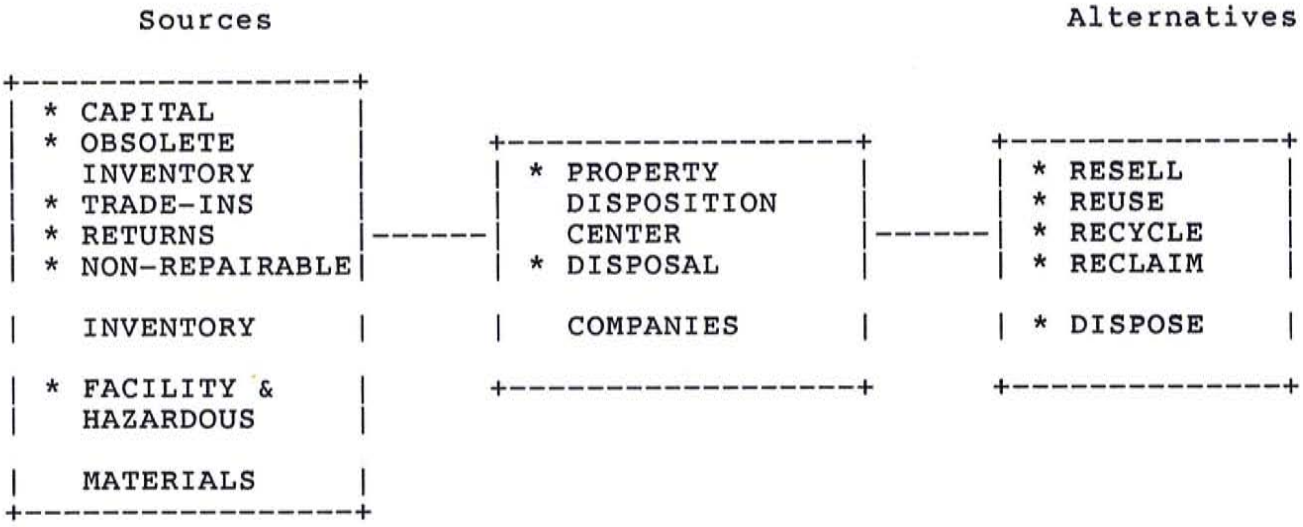
Focus on Waste Yields Results

Digital has a major opportunity to reduce its generation of solid wastes and to manage the disposition of wastes more effectively. Waste is defined in this context as product, asset, facility or process material or discharge that has no apparent productive use in its present form. Worldwide estimates are that the Company annually disposes of 125 million pounds of waste. Of that, 35 million pounds is processed by Property Disposition Centers, like the one in Contoocook, NH.

Recognizing the need for an integrated and centralized approach to manage present waste minimization plans and to establish future strategic direction, the Corporate Strategic Waste Management Group was established in July 1989. This group's mission is to excel in waste management practices that reduce waste and save money for Digital, its customers and suppliers by developing opportunities and solutions and through employee involvement.

Broad range goals were established to set the direction for Digital and to improve on management of the far-reaching flow of waste material. The schematic below outlines the sources of waste and alternatives for its disposition:

SOLID WASTE FLOW



Many successes have been achieved to date. $3 mil was saved in FY90 and 91 by redesign and reduction in packaging materials. A component removal machine was developed, with projected savings of $1 mil annually. A recycling process is being developed for CRT tubes to save about $.05 mil. A recycling program for plastics was established that will avoid the disposal of about 1.5 mil pounds annually in landfills. A program office was established to set plans and goals to eliminate CFC's from manufacturing process by the end of FY93. In the United States, the Property Disposition Centers have been consolidated in Contoocook to eliminate over 0.5 mil square feet of space.

Several Product Creation Units (PCU's) have expressed interest in waste management technology and are striving to use more

environmentally friendly materials, in addition to improving design techniques for disassembly. One of the tools engineering will use to identify and select more environmentally friendly materials is the Material Identification System, which is currently being developed.

A major effort is underway to redistribute idle assets. A project to identify and redistribute idle computer equipment will reduce the need for organizations to order new equipment. (One such project was recently completed at a number of New Hampshire sites. Contact your facility manager for more information on Idle Asset Awareness Day at your site.) During the first six weeks of the program, $0.5 mil of assets was redistributed. Also, the Internal Equipment Group (IEG) is currently redistributing used equipment. In tandem with that effort, enhancements to the DIAL (Digital Idle Asset Listing) system are making it more user friendly and accessible.

Employees are encouraged to propose and implement solutions to waste problems. Local teams and the DELTA program are two ways to get involved. The Corporate Strategic Waste Management Group encourages and supports all efforts to help Digital achieve excellence in waste management practices.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 008080
Date: 19-Mar-1991 11:26am EST
From: DAVID WEIL
WEIL.DAVID AT A1 at ICS a
t PKO
Dept: Corporate Waste Managemen
t
Tel No: 223-8391

TO: JUDY TEMPLE @MKO

CC: ANN FULLERTON @MLO

Subject: PLEASE DELETE LAST MESSAGE - THIS SUPERSEDES IT

I N T E R O F F I C E M E M O R A N D U M

Date: 19-Mar-1991 09:28am EST
From: DAVID WEIL
WEIL.DAVID
Dept: Corporate Waste Managemen
t
Tel No: 223-8391

TO: Remote Addressee (JUDY TEMPLE @MKO)

CC: Remote Addressee (ANN FULLERTON @MLO)

Subject: Article for the New Hampshire View

Judy,

Ann requested that I make the following changes to the article:

- Title of schematic (also added "hazardous" in left hand box)
- Add specific results since we now have the data - change one entire paragraph and added one sentence in the last.

I hope this does it.

Regards,

Dave

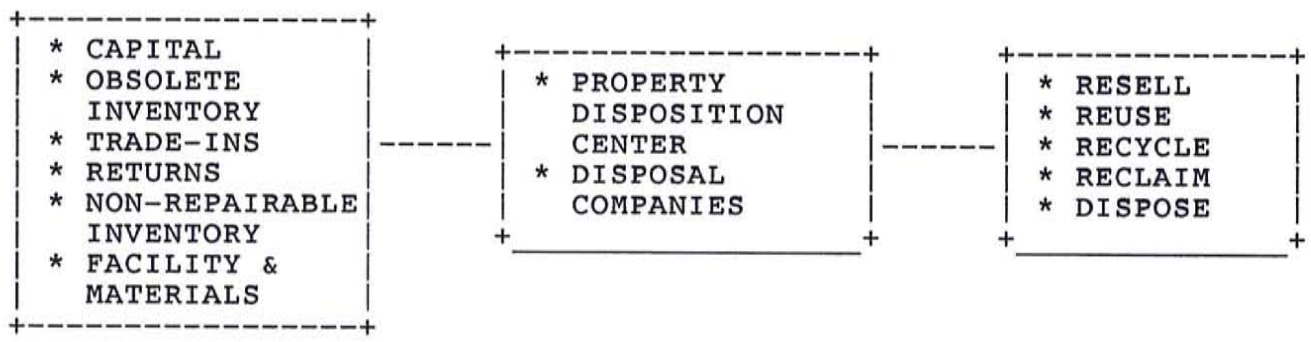
Focus on Waste Yields Results

Digital has a major opportunity ...lid
wastes and to manage the disposi... Waste is defined in this context ...or
process material or discharge th... use
in its present form. Worldwide ... annually disposes of 125 millior... million pounds is processed by ... like
the one in Contoocook, NH.

Recognizing the need for an ... approach to manage present waste ... establish future strategic dire... Waste Management Group was estal... group's mission is to excel in ... reduce waste and save money for ... suppliers by developing opportu... employee involvement.

Broad range goals were established to set the ... for Digital and to improve on management of the far-reaching flow of waste material. The schematic below outlines the sources of waste and alternatives for its disposition:

Waste Stream Model



Many successes have been achieved to date. In the United States, the Property Disposition Centers have been consolidated in Contoocook. Changes in waste stream disposal and reduction in the amount of packaging materials used have cut costs, minimized waste and benefited the environment.

Several Product Creation Units (PCU's) have expressed interest in waste management technology and are striving to use more environmentally friendly materials, in addition to improving design techniques for disassembly. One of the tools engineering will use to identify and select more environmentally friendly materials is the Material Identification System, which is currently being developed.

A major effort is underway to redistribute idle assets. A project to identify and redistribute idle computer equipment will reduce the need for organizations to order new equipment. (One

such project was recently completed at a number of New Hampshire sites. Contact your facility manager for more information on Idle Asset Awareness Day at your site.) The Internal Equipment Group (IEG) is currently redistributing used equipment. In tandem with that effort, enhancements to the DIAL (Digital Idle Asset Listing) system are making it more user friendly and accessible.

Employees are encouraged to propose and implement solutions to waste problems. Local teams and the DELTA program are two ways to get involved. The Corporate Strategic Waste Management Group encourages and supports all efforts to help Digital achieve excellence in waste management practices.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 007932
Date: 04-Mar-1991 01:07pm EST
From: JUDY TEMPLE@MKO
TEMPLE.JUDY AT A1 at BRAT

at MKO

Dept: COMM/GOVT RELATIONS
Tel No: 264-4018

TO: Ann Fullerton@MLO

Subject: "Clean" copy of Waste Minimization Group article

Am forwarding a version of the Waste Minimization article with the typos in the model corrected. Perhaps this will be easier to work with.

Judy

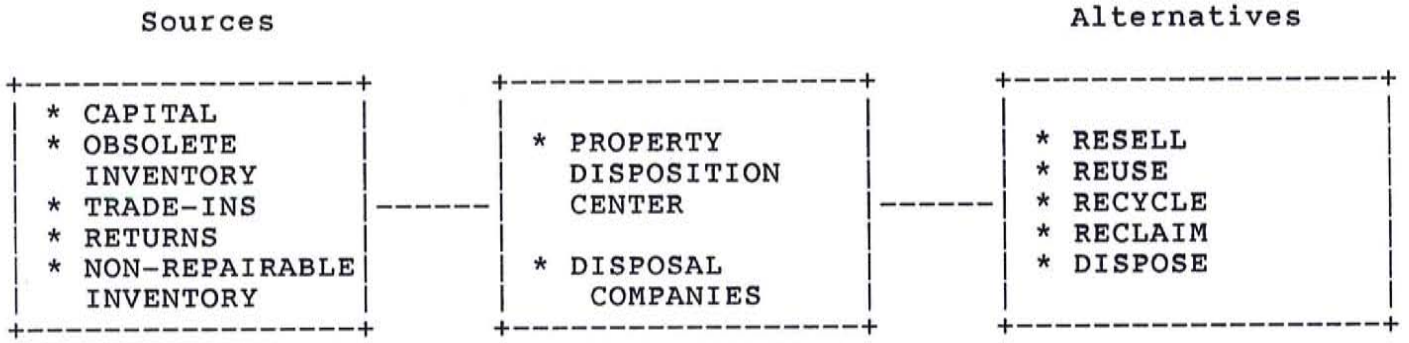
Focus on Waste Yields Results

Digital has a major opportunity to reduce its generation of solid wastes and to manage the disposition of wastes more effectively. Waste is defined in this context as product, asset, facility or process material or discharge that has no apparent productive use in its present form. Worldwide estimates are that the Company annually disposes of 125 million pounds of waste. Of that, 35 million pounds is processed by Property Disposition Centers, like the one in Contoocook, NH.

Recognizing the need for an integrated and centralized approach to manage present waste minimization plans and to establish future strategic direction, the Corporate Strategic Waste Management Group was established in July 1989. This group embarked on a mission for Digital which is to excel in waste management practices that reduce waste and save money for Digital, its customers and suppliers.

Broad range goals were established to set the direction for Digital and to improve on management of the far-reaching flow of waste material. The schematic below outlines the sources of waste and alternatives for its disposition:

Waste Stream Model



Many successes have been achieved to date. In the United States, the Property Disposition Centers have been consolidated in Contoocook. Changes in waste stream disposal and reduction in the amount of packaging materials used have cut costs, minimized waste and benefited the environment.

Several Product Creation Units (PCU's) have expressed interest in waste management technology and are striving to use more environmentally friendly materials, in addition to improving design techniques for disassembly. One of the tools engineering will use to identify and select more environmentally friendly materials is the Material Identification System, which is currently being developed.

A major effort is underway to redistribute idle assets. A project to identify and redistribute idle computer equipment will reduce the need for organizations to order new equipment. (One such project was recently completed at a number of New Hampshire sites. Contact your facility manager for more information on Idle Asset Awareness Day at your site.) The Internal Equipment Group

(IEG) is currently redistributing used equipment. In tandem with that effort, enhancements to the DIAL (Digital Idle Asset Listing) system are making it more user friendly and accessible.

Employees are encouraged to propose and implement solutions to waste problems. Local teams and the DELTA program are two ways to get involved. The Corporate Strategic Waste Management Group encourages and supports all efforts to help Digital achieve excellence in waste management practices.

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 007901
Date: 28-Feb-1991 02:22pm EST
From: JUDY TEMPLE@MKO
TEMPLE.JUDY AT A1 at BRAT

at MKO

Dept: COMM/GOVT RELATIONS
Tel No: 264-4018

TO: Ann fullerton@mlo
TO: David WEil@PKO
TO: David Weil@MSO

Subject: Waste Minimization article for NH View

Attached is the revised and edited Waste Minimization article for the March 18 issue of NH View.

Dave - I've sent it to you at both your old and new addresses.

Ann - Dave and I conferred by phone to edit the article.

Could you have any comments or further edits to me by Monday at the close of work? Thank you.

Judy Temple

CALLED EPA →
NEW PRODUCTS MODEL → Cost

JOHN BERARD → RECYCLING (BINDERS) STORY
'AIR
SANDY NEWFIELD ARTICLE FOR DTW & LIVEWIRE

Chevron

Chevron Chemical Company
4650 College Boulevard, Suite 209, Overland Park, KS 66211 • Phone: (913) 491-1777 or (800) 255-0401
Fax (913) 491-1621

Deicing Technology

Robert J. Strawn
Manager, Market Development
A. A. Mytna
Area Manager

VIA FAX: 508/493-4173

12/5/90

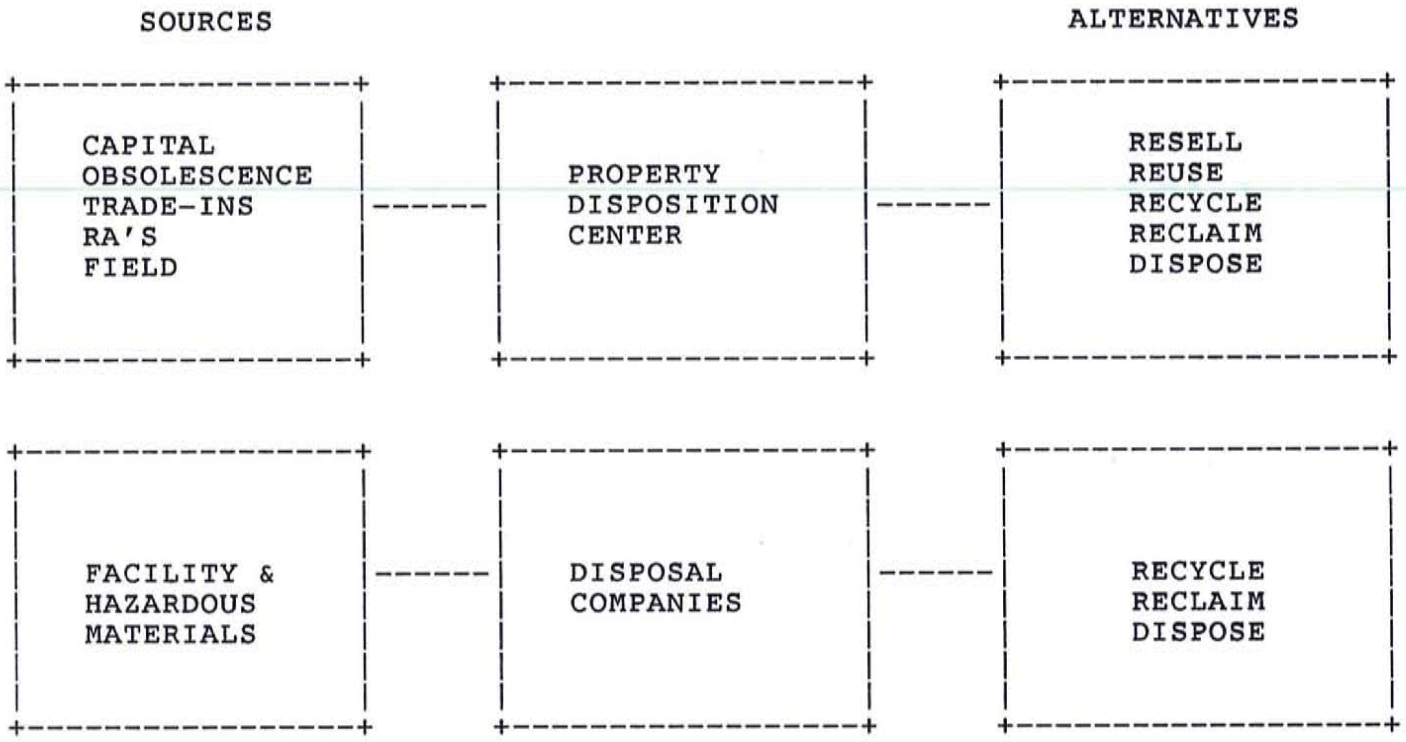
Ms. Ann Fullerton —

Continuing on our theme:
Digital's Mr. Bill Downs (603/884-2655) is Facilities Land Manager at Merrimack, NH. Downs identified a potential environmental problem using salt for deicing Merrimack's roads and parking lots. The potential problem involved ground water contamination.
Rather than ignore the environmental issue, Downs researched various deicing compounds and found Chevron's ICE-B-GON to be an environmentally safe alternative. The process of research and then testing the product took a couple years. We believe Downs' concern for the environment and willingness to find a solution deserves recognition within the Digital family.

Robert J. Strawn

WASTE MANAGEMENT

BUSINESS MODEL



I N T E R O F F I C E M E M O R A N D U M

Doc. No: 007811
Date: 20-Feb-1991 12:16pm EST
From: DAVID WEIL
WEIL.DAVID AT A1 at ICS at PKO
Dept: Corporate Waste Management
Tel No:

TO: TEMPLE@BRAT@VMSMAIL

CC: ANN FULLERTON @MLO

Subject: Article for New Hampshire View

Judy,

Attached is a draft article per your request. It may be a little long; however, with your editorial skills, you can tighten it up.

I have also attached a "Business Model" that may be useful as a visual in the article.

Please advise if you need anything further.

Regards,

Dave

FOCUS ON WASTE YIELDS RESULTS

Digital has a big opportunity to reduce its generation of solid wastes, and to manage the disposition of wastes more effectively. Waste is defined in this context as: product, asset, facility or process material or discharge that has no apparent productive use in its present form. Worldwide estimates are that the Company disposes of 125 million pounds annually. Of that, 35 million pounds is processed by Property Disposition Centers, like the one in Contoocook, NH.

Recognizing the need for an integrated approach to manage present plans, which were decentralized, and to establish future strategic direction, the Corporate Strategic Waste Management Group was established in July 1989. This Group embarked on a mission for Digital:

> "Achieve world class excellence in waste management practices that reduce waste and generate additional profit for Digital, its customers and suppliers through the development of opportunities and solutions, and employee involvement."

Broad range goals were established to set the direction for Digital and to improve on management of the far-reaching flow of waste material. Succintly stated, these goals are to:

- Improve on waste stream management by identifying opportunities and establishing operational plans.
- Establish excellence in introduction of new products and processes.
- Implement mechanisms and tools to manage waste effectively and efficiently.
- Market Digital solutions to customers and suppliers through new ventures.

Many sucesses have been achieved to date. In the United States, the Property Disposition Centers have been consolidated in Contoocook achieving financial efficiencies. Changes implemented in disposal of waste streams has improved on financial recoveries and environmental benefits. Several packaging projects have reduced the amount of materials used achieving both process cost reductions and waste minimization.

Several PBU's have expressed interest in waste management technology, and are pursuing efforts to use more environmentally friendly materials, as well as improved design for disassembly techniques. One tool to assist them, called the Material Identification System, is in the process of being developed.

A major effort is underway to redistribute idle assets. A specific project to identify and redistribute idle computer equipment will reduce the need for organizations to order new equipment. (Contact your facility manager for more information on Idle Asset Awareness Day.) IEG is now redistributing used equipment. Concurrently, enhancements to DIAL (the Digital Idle Asset Listing system) are underway to make it more accessible and user friendly.

Employee Involvement in proposing and implementing solutions to waste concerns allows each of us to contribute to this effort. Local teams and DELTA are two vehicles to get involved. We want to encourage and support all of your efforts in helping Digital achieve excellence in waste management practices.

From: ICS::NELSONK "15-Feb-1991 1430" 15-FEB-1991 14:26:42.88
To: IPEDSN::NIELSEN,ASABET::FULLERTON
CC: NELSONK
Subj: Taking the 'RAP' for Waste Management

Larry and Ann, here is the revised article about the CXO Rap team.

Larry, I don't understand the paragraph that begins, "A major source ...". I know what JIT is, and I can probably fake it through the pull process, but it would help to have a short-but-sweet explanation in Standard American English.

Also, I would like to know what all those RAs and RFs are and why the cost savings are so significant. Perhaps we need something like, "The RAxxx whoozit, which used to be packed in enough bubble wrap to ship Rhode Island, now is shipped in Saran wrap at $2.39 a roll.' Something like that. I think comparing and contrasting "what we did then" with "what we do now" will help readers understand why this is so important.

I understand you will be on vacation next week. Can you turn this around before you leave today? I don't foresee any major problems with it, perhaps your comments can wait till Monday the 25th -- I'll leave it up to you. It's just that Ann and I did plan for this to appear in the March 5 DTW, and the deadline for that issue is next Wednesday, Feb. 20.

Meantime, any questions/comments, please call or send mail.

Thanx to both of you,
Kate

Waste Management Program

(Editor's note: Digital's Waste Management Program is committed to reducing waste through both source reduction and behavioral change. To help in this effort, DTW is providing information about ideas and programs on a quarterly basis. In this article, you'll learn how the Colorado Springs facility is saving money and reducing waste by reusing packaging.)

Since virtually all aspects of Digital's business generate packaging waste, packaging waste management has become a

significant part of Digital's Corporate Waste Management program.

In Manufacturing and Distribution operations, packaging waste comes from moving materials into and between facilities. In Customer Sales and Service operations, packaging waste results from sending finished products and repair parts to end users, both inside and outside of Digital.

The Packaging Waste Management Program is aimed at reducing

packaging waste and its associated cost from all of these areas, which makes good sense both for the environment and for reducing expense. The program focuses on source reduction -- using less packaging -- when this can be done without damaging the product during shipping.

A major source reduction opportunity for Digital is the application of reusable packaging in conjunction with the Just-In-Time (JIT) "Pull Process."

A leader applying reusable packaging and JIT to waste reduction is the CXO facility in Colorado Springs. Since 1987, the entire CXO facility has worked together to implement these applications.

Led by the "RAP" (Reuse All Packaging) team, the facility has rolled up some major successes in reducing and reusing packaging. The team consists of representatives from logistics, manufacturing, materials, new products, purchasing, supplier engineering and packaging engineering.

Groups and individuals within the CXO plant have been working package reuse and reduction projects for some time. The RAP Team was formed to become the focus for these activities, to foster sharing of ideas and opportunities and avoid duplication of effort among the businesses.

The RAP team put together a report showing annual cost savings at CXO as a result of packaging reduction efforts. The report included recent projects implemented by the RAP team, as well as projects implemented within the past four years by other groups and individuals. As of the end of Q2, FY90, annual cost savings total $1,750,000.

Just a few examples of these efforts and their annual cost savings:

Reusing foam on the RA8X field replacement unit -- $240,000

Packing the RF31 in bulk, vs. a single unit package -- $95,000

Reusing foam on the OECO power supply/power controller -- $130,000

Reusing the plastic trays on the RA9X and on the RA7X head carriage assemblies -- $147,000.

For further information on the Corporate Waste Management program, contact John Caulfield @GSO, DTN 367-6285. For further information on the Packaging Waste Management Program, contact Larry Nielsen @MLO, DTN 223-3758. For futher information on CXO RAP team activities, contact Scott Herbenson @CXO, DTN 522-2545.

From: IPEDSN::NIELSEN "LARRY NIELSEN; MLO8-3/D17; DTN 223-3758" 13-FEB-19
91 11:51:50.23
To: ICS::NELSONK,ASABET::FULLERTON
CC: NIELSEN
Subj: LEAD-IN FOR CXO ARTICLE

Kate/Ann, here is a lead in to the CXO article. Since I couldn't get Ann on the phone this morning, I'm not sure if what I have said about the Corporate Waste Management Program is OK with her, so Ann, please take a look.

Any questions, give a call.

Regards,
Larry

A significant part of Digital's Corporate Waste Management program is Packaging Waste Management. Packaging waste is a result of virtually all aspects of Digital's business. In Manufacturing and Distribution operations, packaging waste comes from the movement of all materials into and between facilities. In Customer Sales and Service operations, packaging waste results from the movement of finished products and repair parts to end users, both inside and outside of Digital.

The Packaging Waste Management Program is aimed at reducing packaging waste, and its associated cost, from all of these areas, which makes good sense both for our environment and for reducing expense. To reduce packaging waste, the program focuses on source reduction, or simply using less packaging when this can be done without increasing product shipping damage. A major source reduction opportunity for Digital is the application of reusable packaging in conjunction with the Just-In-Time (JIT) "Pull Process".

A leader in the application of reusable packaging and JIT is the Colorado Springs facility (CXO). Over the past several years, there has been cooperation throughout the entire CXO facility to implement these applications. The center of this activity has been the "RAP" Team. RAP stands for "reuse all packaging". The following is an article which recently appeared in "Mountain Views" [??? not sure about name], the CXO site newsletter, explaining some of the major successes that they have implemented.

Editors Note:[or part of text, must be inserted somewhere in the article]
For further information on the Corporate Waste Management program, contact John Caulfield, @GNO, DTN 367-6285. For further information on the Packaging

Waste Management Program, contact Larry Nielsen, @MLO, DTN 223-3758. For futher information on CXO RAP team activities, contact Scott Herbenson @CXO, DTN 522-2545.

next article for DTW (FEB.)

From: IPEDSN::NIELSEN "LARRY NIELSEN; MLO8-3/D17; DTN 223-3758" 8-J
AN-1991 12:37:36.35
To: ASABET::FULLERTON
CC:
Subj: CXO PACKAGING COST/WASTE REDUCTION - FYI

From: COMET::HERBENSON "17-Dec-1990 2114" 17-DEC-1990 23:19:12.93
To: COMET::GLICK,@DIST.REUSE,COMET::FLETCHER
CC:
Subj: CXO'S REUSABLE PACKAGING COST REDUCTION REPORT

To: Keith Glick

CC: Dist.Reuse
Dick Fletcher

Date: December 17, 1990
From: Scott Herbenson
Dept: Package Engineering
Extn: 522-2545
Mail: CX01-2/D28
Node: COMET::HERBENSON

Subject: Reusable Packaging Cost Reduction Report

This report lists the packaging materials that are being reused within CXO's Volume Manufacturing Business. Both incoming piece part and field replaced unit packaging materials make up this list. The cost reduction activity focuses on work completed and implemented by the Reuse/Recycle Team and separate groups/individuals. The entire plant's reusable packaging efforts are producing an estimated $1.75 MILLION ANNUAL COST REDUCTION.

I've listed all of CXO's reusable packaging projects that I'm aware, but there might be a few missing from this report. Also, the cost reductions reported do not take into account extra handling labor, storage space, shipping, and reduced landfill cost considerations. The cost reduction figures given below are strictly based upon packaging material savings. These figures were shared by the responsible buyer and/or planner.

Listed below are the packaging materials per manufacturing business and product providing annual cost reductions to the plant:

BUSINESS: SSM	ANNUAL COST REDUCTIONS
* FRU MODULE PACKAGE (Switched from plastic to corrugated shipping container)	$300K
* 4-HIGH CABINET PACKAGE (Reduced corrugated board square foot usage)	$ 26K
* POWER SUPPLY/POWER CONTROLLER PACKAGE (Reusing foam end caps)	$130K
* BACKPLANE PACKAGE	$ 5K

(Reusing foam and corrugated carton assembly)

*	RF31 HDA BULK PACKAGE (Switched from a single pack to a bulk pack)	$ 95K
*	RA9X ECM MODULE PACKAGE (Reusing foam and corrugated carton assembly)	$113K
*	RA8X HDA PACKAGE (Reusing foam cushions)	$240K
*	HSC 40/50/70 REAR DOOR CART (Replaced original packaging with returnable carts)	$ 28K

-continued-

*	HSC 40/50/70 EXTENDER FRAME CART (Replaced original packaging with returnable carts)	$ 26K
*	HSC 40/50/70 TOP COVER CART (Replaced original packaging with returnable carts)	$ 26K
*	HSC 40/50/70 REAR VENT SUPPORT CART (Replaced original packaging with returnable carts)	$ 6K
*	HSC 40/50/70 FRONT DOOR CART (Replaced original packaging with returnable carts)	$ 25K
*	HSC 40/50/70 OUTLET DUCT CART (Replaced original packaging with returnable carts)	$ 4K
*	HSC 40/50/70 O.C.P. BOX CART (Replaced original packaging with returnable carts)	$ 7K
*	HSC 40/50/70 TOP DRIVE MOUNT BRACKET CART (Replaced original packaging with returnable carts)	$ 5K
*	HSC 40/50/70 BOTTOM DRIVE MOUNT BRACKET CART (Replaced original packaging with returnable carts)	$ 6K
*	HSC 40/50/70 SIDE SHIELD CART (Replaced original packaging with returnable carts)	$ 15K
*	HSC 40/50/70 TOP SHIELD CART (Replaced original packaging with returnable carts)	$ 8K
*	HSC 40/50/70 CARD CAGE COVER CART (Replaced original packaging with returnable carts)	$ 6K
*	HSC 40/50/70 FLOPPY DRIVE COVER CART (Replaced original packaging with returnable carts)	$ 4K
*	HSC 40/50/70 REAR SHIELD CART (Replaced original packaging with returnable carts)	$ 4K
*	HSC 40/50/70 TOP BULKHEAD CART (Replaced original packaging with returnable carts)	$ 4K
*	HSC 40/50/70 BOTTOM BULKHEAD CART (Replaced original packaging with returnable carts)	$ 4K
*	HSC 40/50/70 BACK PLANE BRACKET CART (Replaced original packaging with returnable carts)	$ 4K
*	HSC 40/50/70 POWER SUPPLY BLANK (Replaced original packaging with returnable carts)	$ 4K

SSM TOTAL = $1,095.0K

BUSINESS: RA9X	ANNUAL COST REDUCTIONS
* MAGNET PLATE PACKAGE (Reusing plastic shipping inserts)	$ 61K
* COIL PACKAGE (Reusing plastic shipping trays)	$ 10K
* SPACER RING PACKAGE (Reusing plastic shipping trays)	$ 27K
* COUNTERWEIGHT PACKAGE (Reusing plastic shipping trays)	$ 5K
* MASTERFLEX PACKAGE (Reusing plastic shipping containers)	$110K
* ARM HEAD PACKAGE (Reusing plastic shipping containers)	$184K
* BASEPLATE PACKAGE (Reusing foam and corrugated carton assembly)	$155K
* CARRIER PACKAGE (Reusing corrugated carton assembly)	$ 25K
* MEDIA PACKAGE (Reusing plastic shipping canister and corrugated/foam assembly)	$ NA
NA = Not available. Will publish data when known.	
* DAMPER BRACKET CART (Replaced original packaging with returnable carts)	$ 8K
* SPRING RETAINER CART (Replaced original packaging with returnable carts)	$ 5K
* LABEL BRACKET CART (Replaced original packaging with returnable carts)	$ 3K
* LOWER BRACKET CART (Replaced original packaging with returnable carts)	$ 4K
* CHASSIS SHIELD CART (Replaced original packaging with returnable carts)	$ 6K
RA9X TOTAL =	$ 603.0K

BUSINESS: DDM S	ANNUAL COST REDUCTION
* RA7X HCA PACKAGE (Reusing plastic shipping container)	$ 37K
* RA7X BMSA PACKAGE (Reusing plastic shipping container)	$ 14K
* RA7X MEDIA PACKAGE (Reusing plastic shipping canister)	$ NA
NA = Not available. Will publish data when given.	
* RF31 MEDIA PACKAGE (Reusing plastic shipping canister)	$ NA
NA = Not available. Will publish data when given.	
* RA8X ARM HEAD PACKAGE (Reusing plastic shipping container)	$ NA
NA = Not available. Will publish data when given.	
* RA8X MEDIA PACKAGE (Reusing plastic shipping canister)	$ NA
NA = Not available. Will publish data when given.	
* RA8X GROUND SCREW PACKAGE (Reusing plastic shipping container)	$ NA
NA = Not available. Will publish data when given.	
DDM TOTAL =	$ 51.0K
CXO PLANT TOTAL =	$1.75M

All new cost reduction projects shall be reported using the reusable packaging cost/waste reduction model developed by Larry Nielsen, Corporate Reusable Packaging Manager. This model calculates the material, disposal, labor, and transportation/handling/storage costs associated between the expendable and reusable packages.

The CXO plant has already established many significant packaging cost reductions within the Volume Manufacturing Business. There's alot more opportunities to be captured yet. The Reuse/Recycle Team was formed to help identify these opportunities and help work them into cost reductions together with the businesses. The Team has recognized a golden opportunity to implement a major cost reduction program with some of our main Midwest suppliers. This program is hinged upon the trial run of setting up a four day per week sweep schedule between Kurt Mfg (Minneapolis, MN) and Remmele Engineering. This Midwest sweep is being implemented and reviewed by Bill Griffith and Steve Klein. If proven successful, some of Dick Gaude t's
reusable cart work could be utilized for these suppliers. There are many other opportunities being explored and worked by the Team. The key to making these cost reductions work and be successful is the team partnership

among all businesses and individuals.

p.txt

DTW - FY 91 Publication Schedule*

*In light of current budget constraints within the company, Digital This Week is changing its publication schedule. We will publish every two weeks through Q1, moving to an every-three-weeks publication schedule in October. There will be a four-week interval between Christmas and New Year's.

ISSUE DATE	COPY DEADLINE
Q1, 6 issues	
June 26	June 13
July 17	July 3
July 31	July 18
Aug. 21	Aug. 8
Sept. 4	Aug. 22
Sept. 18	Sept. 5
Q2, 4 issues	
Oct. 9	Sept. 26
Oct. 30	Oct. 17
√ Nov. 20	Nov. 7 → kick off (SAMPLE ??)
Dec. 11	Nov. 28
Q3, 5 issues	
Jan. 2	Dec. 17
Jan. 22	Jan. 9
Feb. 12	Jan. 30
March 5	Feb. 20
March 26	March 13
Q4, 4 issues	
April 16	April 3
May 7	April 24
May 28	May 15
June 18	June 5

Rev. 7/90

PHONE MEMO

TO: Jim ✓
DATE: 11/14
TIME: 2:18 AM/PM
FROM: Ilene Sike
OF: MCA.
AREA CODE / NO.: 264-3140
EXT.: 608-884

MESSAGE: Re: Waste minimyation & Energy Savings

SIGNED: dl

PHONED ☐ CALL BACK ☐ RETURNED CALL ☐ WANTS TO SEE YOU ☐ WILL CALL AGAIN ☐ WAS IN ☐ URGENT ☐

WESTMINSTER

DECminster

Volume 5, Number 2 March/April 1991

Documentation Services Now Available in Westminster

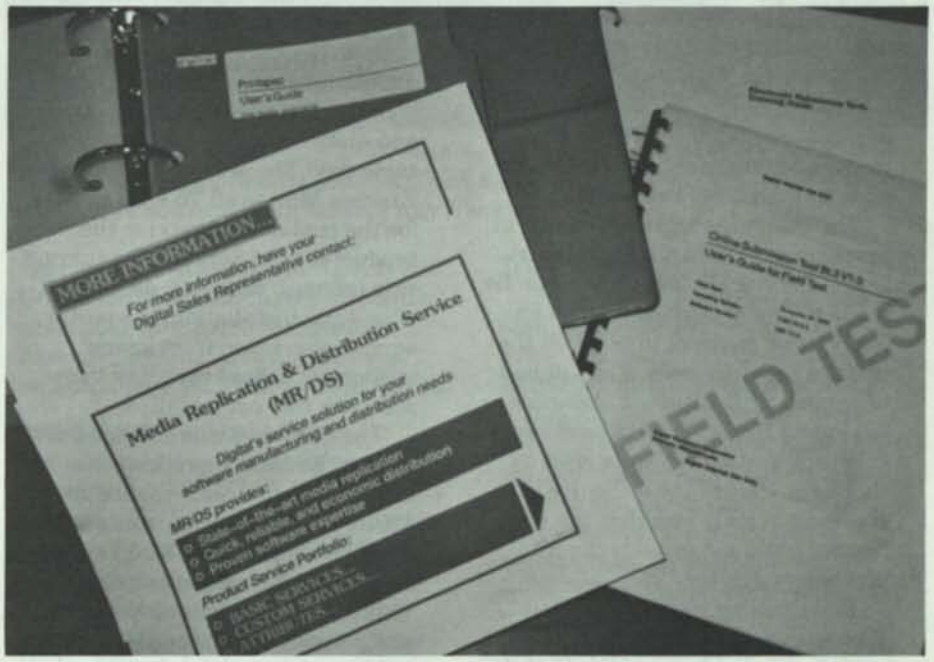
By Pat Salvatore

The U.S. SSB Documentation group officially hung out its shingle on May 28, 1990, signifying the availability of professional documentation services here in Westminster. Since that time, the group has produced over 30 documents with another 55 projects scheduled for production through Q2 FY92.

Headed by Hugh McGinness, the U.S. SSB Documentation group is part of Software Reference Information Services (SRIS). In addition to SRIS, the group has provided technical documentation for Media Applications/Support Technology, Electronic Print/Publications Engineering, License Management Planning/Development and Quality Engineering.

Their portfolio includes user guides, reference manuals, and installation and systems manager's guides for the Printspec, Mechanicals, and Assembly Sheet applications, the License Key Generator, Master Management, EDMS, OST, and more. The group also manages a public directory which serves as a repository for all SSB CUBE-related documents.

The scope of the documentation projects has increased substantially as the group has gained visibility. As a result, it is expanding its services to include not only technical documentation, but also promotional literature such as information sheets and brochures for external customers, customer presentations including multi-color overheads, training materials, catalogs, newsletters, documentation consulting and editing services. Whether creating technical documentation or promotional literature, the Documentation group makes sure that all projects conform to corporate standards as well as international standards. In addition, the group is developing the "SSB Guide to Documentation" which will provide a comprehensive tutorial on standards and processes tailored for SSB documentation.



This Documentation group is well staffed to tackle the diversity of the writing projects it encounters each week. The group is currently made up of four writers and a publications supervisor who are well-versed in a variety of communications disciplines. In their midst is a published author and newspaper reporter, an award-winning technical writer and graphics illustrator, an educator and course developer, and a marketing communications specialist.

These individuals also bring with them their knowledge of VAX DOCUMENT, DECwrite, and various graphics applications including RAGS, UTOX and PSART. With every writing project, the Documentation group assumes responsibility for the life stages traditionally ascribed to technical documentation and promotional literature — from planning to writing, editing and final production. And the group's connection with other writing groups within Digital provides additional support when needed.

In the coming months, U.S. SSB Documentation will be expanding its client base to include End User Services and Business Management Programs. If you, too, have current documentation needs or simply want consultation for future projects, please contact Pat Salvatore at DTN 241-3775 or WMOIS::SALVATORE. ■

SSB Saves the Day for New Postal Rates

By Merillyn Robinson

Back in early December, an inquiry was made as to whether or not the SSB could support a project for the U.S. Postal Service. What the project entailed was shipping 40 TK50s and 30 2400' mag tapes with documentation to 70 postal locations across the United States. New postal rates were to be updated via networking from the New York Postal Service office. If that failed, Digital SSB would be part of a contingency plan to ship media and documentation to the 70 sites no later than February 1.

The challenge for the SSB was to provide a Media Replication Distribution Service (M-R/D-S) solution for the U.S. Postal Service. Digital entered into a contract to network the postage rate increases. This all had to happen by February 2, meaning the Postal Service had to have everything shipped and in their sites by that date. Part of the difficulty in responding quickly was that the Postal Service could not provide the masters before January 25.

Ron Crowley received a call on Wednesday, January 30 that the network had failed because the Postal Service lacked the technical capability to install the equipment. The sales representative involved promised to deliver the masters to SSB by 8:00 P.M. on January 30, but the customer came back with a reply that they would not be done programming until 9:00 P.M. that evening. The Digital sales rep waited at Logan until after midnight for the masters to arrive.

All of SSB had been alerted — Security, Production Control, Media Manufacturing and Distribution — as to how critical the order was. When the sales representative delivered the two media masters at 7:00 A.M. on January 31, they went directly into production. SSB completed the manufacturing, kitting and distribution by 1:00 P.M. the same day! The order was shipped by Express Mail to all 70 sites in time for the customer to receive the product for the Sunday, February 3 rate increase deadline. As a result of on-time installation, the postal service was saved from losing millions of dollars each day the software was not installed.

The customer was delighted and so was the sales representative. A unified, quality performance and the ability for the Westminster site to react on short notice were keys to answering the customer's need. Through tremendous cooperation and a keen sense of urgency, employees ensured that the project succeeded.

An added note of interest is when Ron struck up a conversation with Ken Olsen who was visiting the site for the Product Marketing School on February 20. Ron mentioned that as a result of Digital's quick response, the postal rates increased. When Ken asked if the software worked, Ron replied that the rates went up. Guess it worked! ■

Deadline for Articles is the 15th of Each Month.

DECminster

Editor:
Merillyn Robinson, DTN 241-3507
NODE:WMOIS::ROBINSONM

"DECminster" is published every two months by the WMO Communications Dept. of Digital Equipment Corp. for its employees in the Westminster area.

Contributors:
Mark Clark, Jim Farragher, Jane Fini, Susan LaBonte, Hank LaLiberte, Shirley Mitchell, Carolyn Niemi, Merillyn Robinson, Pat Salvatore, Bonnie Steadman and Gary True.

DECminster's New Look

DECminster is now being produced with one of Digital's electronic publishing products. By the end of the summer, DECminster will be published in its entirety here at the Westminster site. ■

Before the Storm

By Merillyn Robinson

Westminster supported efforts in the Persian Gulf. During Operation Desert Shield, Hill Air Force Base contacted the Software Supply Business (SSB) with an inquiry to help replicate TK50 cartridges for an extremely technical mission guidance system. Ron Crowley fields numerous inquiries as manager of the M-R/D-S (Media Replication Distribution Service). If the request tends to be more technical, he will request support of Jim Sullivan, engineering supervisor of the Technical Development Group.

In this particular case, Ron arranged a teleconference call with the Hill Air Force Base people. John Skowyra (engineering technician), Cary Alexander (principal software engineer), Jim Sullivan, and Ron were involved in the call. Our replication service was offered as a solution for replicating TK50s, but due to the security requirements, this was not acceptable. John and Cary arranged a separate teleconference review to understand exactly what they had for equipment and what they would need for hardware and software to perform TK50 replication.

Digital was not realizing any business out of this, but the SSB was able to provide valuable consultation for the military. Apparently, the military was impressed with Digital's expertise because the SSB received another call from the Navy, at an undisclosed location, for consulting in setting up TK50 replication for Operation Desert Shield. The Navy only wanted hardware configuration information, so, once again, John Skowyra and Jim Sullivan talked them through the process to help them configure equipment in order to have the capability to replicate. Elaine Foster, whose son Don is serving in the Gulf, sent a FAX with detailed configuration information so that the Navy could work with the Digital account representative to fulfill its requirements. ■

Welcome To Westminster!

Carolyn Niemi welcomes the Transportation Group to Westminster.

On February 8, U.S. Customer Distribution sponsored an Orientation Program for the U.S. Area Transportation Group who has relocated to Westminster from Marlboro. The purpose of the program was to familiarize the Transportation organization with the USCD/AD business in WMO and to acquaint them with the services offered here at the site.

Facilitated by Carolyn Niemi of USCD/AD Human Resource and Development, the program had a number of guest speakers that included Harry Manuel (Customer Integration Manager), Elva Guile and Flo Hurlbut (Site Personnel), Mary Penswick (USCD Personnel), Steve Mullins (TIPS Program Coordinator), Mary Maga (Health Services), Mark Clark (DECFIT), Bob McWhirter (Site Security), Hank LaLiberte (Facilities), Jill Valois (Site Activities) and Toni Kennedy (Customer Visit Specialist with the Software Supply Business).

The Transportation group had an opportunity to meet, listen and direct questions to the representatives of each service function as well as take an informative tour of the Westminster facility.

Thank you to everyone who contributed and helped to make this program a success! ■

RideSource

Effective since January 2, 1991, the Commuter Transportation Department offers "RideSource" which is a network to get you in contact with other employees who share your commute in Massachusetts and the New Hampshire area.

For more information about RideSource, call the Commuter Information Line at DTN 234-5008. ■

USCD RAP Awards

By Jim Farragher

RAP Award Winners (l to r): Steve Kolarick, Bob Lewis, Burt Dickey, Alan Chute (Manager), Rachel Hulette, Stein Eriksen and Paul Thornton. Absent from photo are Cindi Covello, Ree Ricker and Ray Henson.

Employees of Westminster USCD (US Customer Distribution) were recently presented with RAP (Recognition Awards Program) awards for their outstanding contributions in business.

Individual Contributor Award

Mike Marrella was recently recognized through the WMO RAP process by his peers for the dedication and initiative he gave by contributing to continued business excellence in the Material Planning organization. Mike volunteered to take on increased responsibility in spite of risk to revenue and inventory during recent months. During these times when the company continues to reduce expenses, performances like Mike's are to be highlighted. Well done Mike!

Team Award

The "Series One Implementation" team was awarded recently at a Freight Administration staff meeting by Alan Chute. The team consisted of Ree Ricker, Burt Dickey, Stein Eriksen, Rachel Hulette, Paul Thornton, Bob Lewis, Steve Kolarik, Ray Henson and Cindi Covello who contributed to the main goal of improvement in business controls while increasing productivity within the group. Reductions in the payment process (suspense file clearing) cycle as well as almost eliminating duplicate occurrences of carrier and vendor invoices were also improved upon, thus translating into overall savings to Digital. Way to go team! ■

News from Skills Development

By Shirley Mitchell

The Skills Development Program has just completed two math classes for Q3: Business Math II and a brand new Prep Math Class for students interested in the quality courses such as Q-Squared or Certified Quality Technician. Both classes were very successful. The students appreciated the methods and teaching style of Donna Curry. Follow-up problems will be sent to students over the system to encourage them to practice the skills learned in class. Students can send their answers to Donna or Shirley for correction.

If you are interested in signing up for either of these classes which will be offered again in April, fill out an application for training form, or contact Donna Curry X4623 or Shirley Mitchell X4926. The SDP will also be offering Business Math I for folks who would like to brush up on math basics, and Memo Writing for those who would like to write clear, concise memos, letters and reports. Another new program is in the design phase planned for April. It is "Logical Thinking Skills." The class will focus on word problems encountered in everyday life. This could be the class for you!

Feel free to contact anyone in the Skills Development Program for information on any of the classes or suggestions for supporting the work you do. ■

Computer Bus Hosts Senior Citizens

By Merillyn Robinson

A group of 12 enthusiastic senior citizens from the communities of Clinton, Lunenburg and Leominster were recent graduates of the January Computer Bus hosted at United Way of Fitchburg. During the month, the group acquired skills in a fast-paced environment that included word processing, desktop publishing, database and spreadsheet. Community Relations of Westminster covered the training costs and Digital's Corporate Community Relations office donated equipment to each senior center.

There were many anxious moments when classes first began. The students were frightened in the beginning, but excited about the prospect of learning a new skill. Everyone stayed for the duration of the course, no one was ever late for class and they never missed a day of training. Classes were customized to the needs of each senior center and, through dedication and making mistakes, the three groups triumphed.

Students from the Clinton Senior Center are (l to r): Betty Alden, Eleanor Mitchell (Director) and Lorraine Rosenthal.

Lunenburg Senior Center graduates (l to r) are Dot Mason, Mario Patacchiola and Ann Patacchiola.

Computer Bus graduates from the Leominster Senior Center pictured (l to r) are Joan Fitzgerald, Jean Burford, Florence Arsenault, Rolf Anderson, Frances McLaughlin and Rene Rougeau.

Students were eager to share their computer training experiences. Joan Fitzgerald, Director of the Leominster Senior Center, felt that the training was fantastic! She recruited volunteers at the center to use equipment in daily scheduled 2-hour time slots. What Joan finds amazing is that, prior to starting the course, she knew nothing about computers and is now computer literate after one month of training.

Betty Alden of the Clinton Senior Center commented that Digital speaks for itself in networking communications for the American people. Since joining the age of technology, her work is easier and she can work with a spreadsheet on her own without sending the work outside of her office.

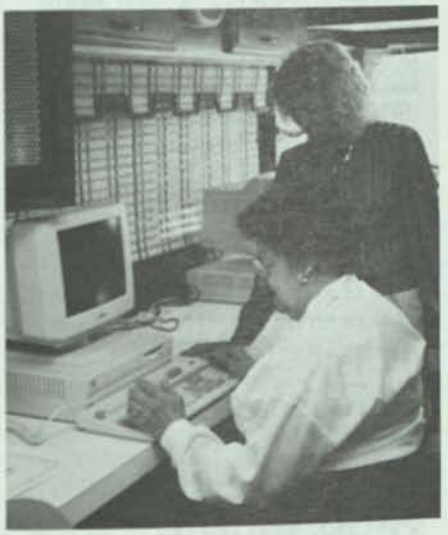
A smiling Ann Patacchiola recalls wanting to quit after the second day because she did not have typing skills. Ann decided to stick with the training and is very glad that she did!

Jean Burford was content with her typewriter until enrolling in the Computer Bus training. She claims that the typewriter does not cut it anymore. She has the capability to do more and is grateful, as an older senior citizen, to have had the opportunity to acquire computer knowledge. Jean, as well as the other students, proved that one can learn at any age.

The mystery of computing has been a wonderful, eye-opening experience for Mario Patacchiola. He always realized the computer's potential, and is very glad to be exposed to beneficial applications. Mario was impressed with the caliber of the instructors, Jane Robertson and Paul Neslusan of French River Education Center, who were patient and creative in their teaching approach to make students understand.

Florence Arsenault phoned her sister in Canada to let her know that she was going to learn about computers. Because Florence is retired, her sister could not understand why Florence would want computer training. Florence is not retired from life and wanted to learn a new skill. Age is not a factor in learning.

Students from all three senior citizen centers were impressed with the donation and training they received from Digital. Instilling knowledge and confidence in the students has opened up new possibilities in the world of computing. Congratulations to all senior citizen graduates for being successful! ■



Computer Bus instructor, Jane Robertson, watches Florence Arsenault showcase her newly learned computer skills. Shift, Florence, shift!

Employee Contribution Helps to Save the Environment

By Gary True

Recently, a WMO employee began concentrating his efforts on saving the environment. Mike Sheperd, an employee for Media Manufacturing, became aware of large quantities of plastic being disposed of in a dump near Westminster. The plastic is part of the required packaging for mag-tape reels within Media Manufacturing. Mike began his efforts by notifying his supervisor and other groups such as Packaging Engineering, Facilities and Materials of his intention to save the plastic container rings instead of throwing them away. He then began the process of what became a long journey.

The first road Mike traveled was to have the container rings recycled. Mike was disappointed to learn that this particular type of plastic could not possibly be recycled. His second suggestion was to have the plastic pieces sent back to the vendor to be reused. Unfortunately, the response he received from the vendor was that they purchased the items as kits from another vendor and could not be reused. By this time, Mike was feeling frustrated. However, Debbie Kilgour, an employee working for the Materials department, also had a high level of commitment to see the effort through. Debbie was persistent in requesting that the vendors research the possibility of reusing the plastic.

Committed to saving the environment are front row (l to r): Hank LaLiberte, Brian Maillet, Bob Turney, Ron Folks and Debbie Kilgour. Back row (l to r): Mike Sheperd, Dan Andrews, Tom Meany, Greg Leger and Gary True.

For Mike and Debbie, the long journey is now complete. One of the vendors agreed to reuse the plastic rings. A total of 2,224 pounds of plastic was sent back to the vendor! This represents only a few months of material collected. Had it not been for their determination, the plastic would have been transported to the nearby landfill.

Mike's efforts have now triggered others to take a look at their business and become more environmentally aware. The project has resulted in considering the removal of plastic from the operation completely. This is a fine example of what determination and employee cooperation can do to eliminate waste. ■

Stairclimbers in the DECFIT Spotlight

By Mark Clark

I guess the question could be asked... why run and walk up the 50 floors at the Prudential Tower in Boston? If you ask one of the seven DECFIT participants of the Prudential 1991 Stairclimb for Cystic Fibrosis, you may get a couple of different responses. For example, "that is a good question, why are we doing this?" or "I don't know, because it's there?" or how about "it (climbing) sounded good at the time!" "it's a challenge" and the very popular response of "why not?"

PRUDENTIAL 1991 STAIR CLIMB

Cystic Fibrosis Foundation

For whatever reason, a twofold challenge was made on March 3, 1991 by the Cystic Fibrosis Foundation. The first challenge was to climb 50 floors of Boston's Prudential Tower. Participants could do this at their own pace and it was specified that this was not a race. The other challenge was an even bigger step, which is to fight cystic fibrosis, our nation's leading genetic killer. Incurable, cystic fibrosis attacks the lungs and digestive system in one out of twenty unknowing carriers.

Both challenges were accepted and met by WMO employees Michelle Lagoy, Peter Hodgen, Jerry McCartney, Curt McLelland, Beth Mathieu along with DECFIT coordinators Mark Clark and Shelley Gorham. This group of determined individuals provided the physical effort while many WMO employees helped to meet the challenge of finding a cure for cystic fibrosis with pledge money. An estimated $700 in cash was raised from onsite employees! With Digital's Matching Gift Program, a total of $1,400 was raised by the five Westminster employees! This total team effort helped make the first step towards success an easy one.

As for the stairclimb itself, it was not too bad. With over 1,000 participants, it was a little crowded, a little hot and it was a challenge. But even with these conditions, a few nameless individuals managed to make the climb twice! All DECFIT participants were able to complete the challenge without any problems. By readying themselves well in advance of the

(continued on page 6)

Stairclimbers in the DECFIT Spotlight

(continued from page 5)

challenge through running, aerobics or using the Stairmaster 400 in DECFIT, members were well prepared for the climb. Not only did they help themselves by decreasing their stress levels, blood pressure, weight, and body fat while increasing their strength and endurance, they also helped in the fight against cystic fibrosis.

After the stairclimbing event was over, dancing took place in one of the ballrooms. Free beverages and food were served. Incentive prizes were awarded (T-shirts, stop watches, hats, $60 gift certificates for sneakers) and a 10 - 15 minute (it seemed longer than that... believe me) muscle massage was given by trained professionals. The after event activities helped everyone unwind, enjoy themselves and discuss their strategy for next year's stairclimb challenge. We will be there and hope you will participate, too!

A big thank you goes out to all donators and to all the participants who gave their time and effort for a good cause. If you would like to be reminded about the Stairclimb 1992 challenge, send me a note at WMOIS::M_Clark and I will put you on the mailing list for updates and information. ■

Westminster Facility 1991 Evacuation Plan

by Hank LaLiberte

Due to the influx of new employees in the WMO facility, as well as a refresher for others, Environmental, Health and Safety would like to outline the site's Emergency Evacuation Program.

All employees must know their evacuation point. Evacuation maps are posted in each core identifying emergency exit doors and outside assembly points for each area. Each area should have an evacuation coordinator and an alternate to assure headcount in the event of an emergency evacuation.

The following questions should be asked as a "self test" to assure readiness and compliance with this evacuation plan:

- What is the letter/color zone that I am working in?
- What are the primary and secondary routes from my area(s)?
- What critical information or machinery, if any, in my area must be secured?
- Where is my outside assembly point? (There are signs outside identifying the locations of each assembly point.)
- How do I account for my employees?
- Do all my employees understand the procedure?

The Environmental, Health and Safety Department will be glad to work with all managers, supervisors and coordinators to develop plans or make evacuation presentations to employees. Please contact either Linda Howard at X3322, Hank LaLiberte at X3335 or Ray Rathier at X3356 to make arrangements. ■

BOM SGIA Wraps It Up

By Merillyn Robinson

BOM SGIA Team members front row (l to r) are Melissa Bernard, Dennis Darcy and Helen Raby. Back row (l to r) are Dave Giguere, Nancy Gammell and Mark Chapalonis.

It is the end of an era for the Bill of Materials Small Group Improvement Activity (BOM SGIA) team. After a year of being committed to reducing defects in Distribution, this highly successful team is bringing their mission to closure.

Before the team was formed, the group would discuss just numbers in meetings. The team turned the old format of the meetings into an opportunity to do project work by setting business goals and correcting problems within the business, not just reporting data.

The BOM team took four recommendations as action items to implement within their business. Enhancing processes in the Business Centers, adding value to training throughout Distribution, forming partnerships with BOM Administration to develop training packages for BOM awareness, and coordinating MAXCIM enhancements to reduce the number of Bill of Materials and to eliminate waste were targeted key areas for improvement.

To achieve these goals, the BOM team utilized tools taught in SMIP (Statistical Methods of Improving Performance) where the team learned what tools were available to apply in their work environment. The SPC (Statistical Process Control) close loop model applied to the team's four recommendations. Total employee floor involvement, quality improvements and CTR (Cycle Time Reduction) were three major benefits attained for Distribution.

The team also became focused on saving money. When reports came out for defect types in Fiscal Year 1990, statistics showed that Bill of Materials had the highest amount (23%) of total defects. As of February 23, 1991, a significant reduction in BOM to 8% of total defects had been achieved. BOM also went twelve consecutive weeks with zero defects! They managed to decrease paper usage by 50%. Previously, an order averaged 10 pieces of paper which is now down to 5 pieces of paper. This resulted in a 64% cost reduction!

Establishing partnerships and forming new relationships were an important part of the BOM team's success. The team would personally like to acknowledge and thank Mike Hoag for his guidance, Peggy Lupaczyk for teaching graphics, Kevin McGuirk for BOM awareness training and the design of a service level agreement, and Chris MacInnis for his engineering support. There were also many other individuals and organizations who supported the team.

The time has come for the BOM SGIA team to start new ventures in carrying the theme of continuous improvement to other business areas. They are proof that Small Group Improvement Activity teams do work. Through dedicated persistence, the BOM team ensured that their goals were achieved. The SSB salutes their efforts! ■

News from the Employee Services Corner

By Bonnie Steadman

Valentine's Day in WMO was a rather flowery day in quite the literal sense. Carnations, lollipops and balloons were delivered all over the site brightening a good many employees' day. As usual, the deliverers had a good time too, even though their feet may have ached by the end of the day. Special thanks go out to Elva Guile, Gale Landry, Mona Longley and Jill Valois for the many miles they put on their sneakers!

A total of $1,212.70 sales were made, resulting in a profit of $258.44. Out of the profit earned, a $75 gift certificate and a $25 flower arrangement were raffled off.

CONGRATULATIONS to DENISE PLANT, winner of the $75 dinner gift certificate at The Little Chef — enjoy!

A second CONGRATULATIONS goes to GEORGE YU, winner of the $25 flower arrangement. Everyone who made a purchase for Valentine's Day was automatically entered into this special drawing. ■

Elva Guile delivers Valentine surprises.

Denise Plant receives her gift certificate from Bonnie Steadman.

Winner George Yu with his flower arrangement.

"Valuing People" Events

By Bonnie Steadman

Black History Month and Dr. Martin Luther King Day were recognized this year due to the efforts Phil Jones, J.J. Owens, Howard Ray and Sonia Taylor made in coordinating the various events. On January 15, Dr. King's Birthday was remembered with a brief excerpt from his famous "I Have a Dream" speech over the PA system. Given that on this same day our men and women engaged in the Persian Gulf War, this message seemed to take on special meaning in the hope that all people will walk together some day. On February 12, Adrian Ford from Three Pyramids in Fitchburg, Dr. Grainger Browning, retired professor of Fitchburg State College, and Lucy Marshall from Digital in Shrewsbury participated in a panel discussion. The topic of the discussion was "Positive Images from the Black Community Then and Now" which covered education, economics and life experiences. The thought-provoking film "Glory" was shown as well as a video of Father Clements in a presentation that he recently made in New Hampshire.

March was Women's History Month and filled with activities in celebration of the accomplishments women have made.

All employees are encouraged to attend the various "Valuing People" activities. They are planned so that we may increase our awareness of the multi-cultural world we live in and how we can help each person to contribute to their fullest potential in our workplace and community. ■

Congratulations, Ken Esposito, for winning three Celtics tickets in the "Beat the Winter Blahs" contest!

March Bloodmobile

By Jane Fini

Leprechauns set out to search for blood donors (l to r): Carol Spagnuolo and Merillyn Robinson.

It is THANK YOU time again — a message that is always a pleasure to convey. NINETY-ONE PINTS were collected at the March 13th Bloodmobile and a note of gratitude goes out to all those who donated.

Merillyn Robinson and Carol Spagnuolo again brought smiles to many faces as they enlisted donors in their St. Patrick's Day regalia. The special, caring donors of Digital Westminster could be counted on, as always, for their generosity. ■

BUSINESS PLANNING AND DEVELOPMENT'S Q4 FY'91 Open Enrollment Training Schedule (May/June)

EDMS Overview 1:00 - 5:00 **$60 Training HRD Classroom	**May 8, 1991** (4 hour session - Lecture) **ENROLL BY:** Wednesday, April 24
EST Refresher 8:30 - 12:30 **$60 Technical Training Center (TTC)	**May 9, 1991** (4 hour session - Lab) **ENROLL BY:** Thursday, April 25
EST Training 8:30 - 4:30 **$120 Technical Training Center (TTC)	**May 22, 1991** (FULL day - Lecture and Lab) **ENROLL BY:** Wednesday, May 8
VAXcamps 9:00 - 10:30 **$15 Technical Training Center (TTC)	**May 2, 1991** (1.5 hour session) **ENROLL BY:** Thursday, April 18
VAXcamps 9:00 - 10:30 **$15 Technical Training Center (TTC)	**May 16, 1991** (1.5 hour session) **ENROLL BY:** Thursday, May 2
VAXcamps 9:00 - 10:30 **$15 Technical Training Center (TTC)	**June 6, 1991** (1.5 hour session) **ENROLL BY:** Thursday, May 23
VAXcamps 9:00 - 10:30 **$15 Technical Training Center (TTC)	**June 20, 1991** (1.5 hour session) **ENROLL BY:** Thursday, June 6

NOTE: EDMS (Electronic Documentation Master Standard) Overview and EST (Electronic Submission Tools) Training and Refresher course there will be NO CHARGE to all cost centers UNLESS YOU ARE A NO SHOW.

VAXcamps - If your are in the SSB there is NO cross-charge unless you are a NO SHOW. All other cost centers will be cross-charged $15.

TO ENROLL FOR A PROGRAM please fill out an Application for Education and Training form (Rev. G) which is available in Business Development or Office Services. Space given to SSB first, next to other businesses, and last to other Digital facilities. Please return your COMPLETED form to Susan LaBonte — DTN: 241-3020, Core 3 near Pole C3 or via Interoffice Mail — WMO/G13.

PLEASE REFER TO LIVEWIRE FOR ALL COURSE PROFILES and POLICIES AND PROCEDURES.

> at the $ prompt type LIVE or LIVEWIRE <carriage return>
> CHOICE 4: (Westminster News) <cr>
> CHOICE 7: (Training & Education) <cr>

Digital This Week

Volume 17, Number 1 January 9, 1990

Sam Fuller elected IEEE Fellow

Sam Fuller

Sam Fuller, vice president, Corporate Research and Architecture, has been elected a Fellow of the Institute of Electrical and Electronics Engineers (IEEE). Sam was honored for his leadership and contributions to computer architecture design.

The grade of Fellow recognizes 'unusual distinction' in the electrical and electronics engineering profession. It is conferred only by invitation of the IEEE Board of Directors.

Sam joins four other IEEE Fellows in Digital -- President Ken Olsen; Bob Everett, a member of Digital's Board of Directors; Bob Glorioso, vice president, High Performance Systems; and Mike Riggle, Senior Corporate consultant.

Sam's leadership contributed to the high performance input/output architecture (CI) which was used in all high-performance VAX systems following the VAX-11/750; local area network and adoption of Ethernet at Digital; and the expert system configuration of VAX (XCON) systems.

As vice president of Research and Architecture, Sam is responsible for the company's corporate research programs. These include Digital's research groups in Maynard and Cambridge, Mass.; Palo Alto, Calif.; and Paris, France; joint research with universities, and Digital participation in the Microelectronics and Computer Technology Corp., a research consortium of several companies. The research laboratories in Palo Alto, Cambridge and Paris were established under his guidance and focus on distributed

continued on page 10

'Career Opportunity Days II' begins today; more newly created positions available

The MRO3 facility in Marlboro will be buzzing today, tomorrow and Thursday as employees meet with hiring managers from across the U.S. during "Career Opportunity Days II." Created to respond to the pressing need to fill critical positions in Sales, Software Sales support, software consulting, and direct revenue support, the event is expected to draw over 1,000 employees.

In addition to these direct revenue positions, new administrative positions have just been created to support selling operations. Also, the Field will be recruiting for the newly announced Sales Trainee Program (Sales Development Specialist). (See related story.)

All the positions offered are located outside of eastern Massachusetts.

Registration for "Career Opportunity Days II" began in November, when interested employees sent their resumes electronically to area hiring managers. Those resumes were screened; then interview appointments were scheduled during the week of Dec. 18. In the first five days after the program was announced on Nov. 20, 800 resumes were received — 300 of them in the first 24 hours alone.

Says Tom Colatosti, U.S. Organization and Workforce Development manager, "We've been getting outstanding support from every part of the company. Employees and organizations have simply grasped the necessity and

importance of the work. They have voluntarily got involved and are contributing over and above their current responsibilities."

"Career Opportunity Days II" is a three-day event, but the need for qualified and qualifiable people in the Field is ongoing, Tom notes. Hiring managers are being actively encouraged to recruit and hire a variety of positions, not just Sales and Sales Support.

"Even if you missed the deadline to register for "Career Opportunity Days II," you can still meet area hiring managers if you are interested in a career in the Field," he says. "While we are giving priority to those who have scheduled interview appointments, "walk-ins" can meet with Field managers to explore job opportunities and can take advantage of the Career Management Center. The center has been set up to help you match your skills with your desired career path."

Tom adds that relocation benefits have been enhanced and "our investment in training and development has significantly increased. This could be the time to take the next step on your personal career development path." ●

They're not talking trash - Local recycling programs make cents

With the installation of blue recycling bins in the CFO2 facility this week, the West Concord site joins the growing list of Digital facilities that have instituted paper recycling programs.

The aim of the programs is to make recycling more convenient for employees. In Northboro, each of the cluster's 1,800 employees has an extra wastebasket in the office. The idea began at a brainstorming session at Cluster Manager Peter Sharon's staff meeting last spring. Steve Fontaine and Gary Nelson of NRO Property Management were assigned to implement the project.

Explains Gary, "The extra wastebasket is just a regular receptacle, except it doesn't have a plastic liner and it's labeled 'Recycle Paper Only'. All we asked folks to do was to throw white paper into the 'recycle' basket — computer printouts, white photocopy paper, white typing paper and memos printed on white paper. Everything else, such as carbon paper, newspaper, magazines, glossy paper, food containers and so on, goes into the plastic-lined wastebasket."

The wastebaskets are emptied on alternate days. Proprietary information, of course, is still carried to properly marked "confidential trash" bins.

Peter says the idea was "embarrassingly simple." And tremendously effective.

"To date we are experiencing a 27-30% reduction in our trash volumes, which presently costs up to $85 a ton to remove," he says. "Plus, we've seen a 20% reduction in the cost of picking up rubbish. The recycled material generated from this program returns about $100 a ton to the company. From Northboro alone, that's between $1,-500 and $1,600 a month. We have estimated that if all Digital facilities in Massachusetts alone utilized our program it would save over $700,000 per year."

"Landfills are closing and waste disposal fees are soaring," notes Cary Gherman, Corporate Waste Managment Consulting Engineer. "So recycling programs make good business sense. More important, however, is the fact that Digital is committed to being a good corporate citizen, and these programs are just one facet of that commitment."

Peter says that feedback from employees has been "fantastic." "Everyone likes the fact that the program is transparent to him," he says. "The trash is picked up on Monday, Wednesday and Friday, and Tuesday and Thursday are recycle days. Eventually, we may be able to eliminate one day a week of trash pick-up. It's amazing the payback we've already received from a $3 investment in a wastebasket."

Dave Renzi, Recycle Program coordinator, notes that the program is designed to make it as easy as possible for employees to participate in a recycling program. "Previously, people who wanted to recycle their waste paper had to carry it to designated bins that were scattered around the building," he says. "This program makes recycling more convenient, so we're increasing the amount of material being recycled and our dollar return."

From time to time, Dave has had to issue reminders about the recycling program. "People made a few mistakes till they got used to having the second wastebasket in their office," he says. "But now I find that I'm issuing far fewer reminders and the whole cluster is recycling a lot more material."

If you are interested in starting a recycling program at your site, you can contact Steve Fontaine at DTN 234-4722 or Gary Nelson, DTN 234-4924 for more information. ●

Cary Gherman named Corporate Waste Management Consultant Engineer

Cary Gherman

Cary Gherman has been named Corporate Waste Management Consultant Engineer, reporting to David Barrett, Corporate manager, Environmental Health & Safety, and John Caulfield, Corporate manager, Waste Management.

Cary will be responsible for providing full-time environmental support for the worldwide waste minimization initiative. Working with waste management coordinators in each of the geographies, he will assist in developing various support programs, including tracking waste, assessing the cost of waste, developing programs for material recycling and re-use, identifying and assessing EHS risks in waste management, and developing and implementing a five-year plan for reducing and managing all types of waste, both hazardous and non-hazardous.

Cary joined Digital in 1981 as an Environmental, Health & Safety engineer in the Greenville printed wire board manufacturing facility. From 1986 to the present, he has been a Corporate Industrial Hygienist/Safety engineer in the Corporate Department Industrial Hygienist/Safety. He holds a bachelor's degree in Environmental Sciences from Rutgers University, and a master's degree in Industrial Hygiene from the University of North Carolina at Chapel Hill.

Cary is interested in your ideas for minimizing waste. Contact him @CFO. ●

Digital This Week

Editor: Kathleen Nelson
DTN 251-1307
ENET:@CFO or BARTLE
::NELSONK

Marketplace: Dawn Swindell
DTN 251-1308

"Digital This Week" is published every other week by the Corporate Employee Communication Department of Digital Equipment Corp. for its employees in the Greater Maynard Area.

Stepfamily seminar to be presented by EAP

Throughout January and February, the Greater Maynard Area Employee Assistance Program (EAP) will present a lunchtime seminar on "Blending Families in Stepfamilies and Remarriage: Triumphs and Tribulations." All seminars will be held from 11:45 a.m.-12:45 p.m. as listed below.

Date	Location/Conference Room
Jan. 19	AKO, Kanata
Jan. 24	CFO2, Bronte
Jan. 25	MSO, Law
Jan. 26	PKO3, Maynard
Jan. 31	HLO, Hall of White Mist
Feb. 1	MLO5-4, Hinchcliffe
Feb. 7	VRO3, Great Meadows
Feb. 9	ACO, Constitution

DECworld '90 scheduled for next summer in Boston

Pat Zilvitis

DECworld '90, Digital's customer event, is scheduled for July 8-Aug. 1 at the World Trade Center, Boston. DECworld will be a selling event within our educational setting. Expanding on the Brown University program, it will focus on gaining a better understanding of customers' needs and Digital's application solutions to meet those needs.

DECworld '90 will be designed as both a customer and a Sales and Sales Support education program. Over 10,000 customers and their account teams are expected to attend.

Pat Zilvitis will serve as the DECworld '90 chair. Peter Zotto, MARCOM manager, will be the DECworld '90 sponsor and provide management support for Pat and the DECworld '90 program.

Pat joined Digital in 1987 as Group IS Product Marketing manager. Prior to joining Digital, Pat was president of Martin Marietta Data Systems and vice president of Marketing for the Perkin-Elmer Computer Group. Pat also spent 17 years with IBM in various Field and Headquarters positions. ●

Mark Roberts assumes new role

Mark Roberts

Mark Roberts has been appointed Marketing Communications manager for Product and Applications Marketing, reporting to Peter Zotto, MARCOM manager.

In his new role, Mark will provide the functional leadership for Digital's Product and Application MARCOM strategies including advertising, promotional literature, customer events and trade shows, direct marketing and sales tools. Additionally, Mark will be the senior manager responsible for guiding Digital's promotional literature strategy and plans company-wide. He will be a member of the new Product Communications Team, and will also become a member of the Corporate Communications Team.

Mark has been with Digital for 19 years. Most recently, he was Product Operations manager and chaired the Announcement Strategy Committee. He was the first DECworld manager for DECworld '84, which established DECworld as a major marketing activity. ●

Boston YMCA names 'Black Achievers'

Nine employees from Massachusetts and New Hampshire have been named "Black Achievers" by the Greater Boston YMCA.

The nine were honored both for their professional achievements and for their community service. They are: **Christopher Brandon,** Information Management and Technology manager, Boston; **Carl Brassell,** Customer Services engineer, Bedford; **Joanne Robinson,** site Personnel manager, Westford; **Herbert Hunter,** district Manufacturing manager, Marlboro; **Fred Huyghue,** manager of Corporate Programs, MicroVAX Systems Marketing, Parker Street; **Staci Hartwell,** area Marketing manager, Direct Marketing Organization, Merrimack; **Diane Jackson,** New Hampshire Community/Government Relations coordinator, Merrimack; **Michael Hayes,** Marketing manager, Business and Office Information Systems (BOIS), Nashua; and **Vikkee Love,** Strategic Marketing manager, BOIS, Nashua.

Black Achievers is a nationwide program that began in 1968 to recognize blacks' achievements in business. Award recipients commit themselves to 40 hours of volunteer service to the YMCA and to the Linkages program. This program links black professionals with youth who aspire to reach their fullest potential both academically and in their careers. ●

Ron Glover named Corporate Personnel Policy manager

Ron Glover

Ron Glover has been appointed Corporate Personnel Policy manager, reporting to Erline Belton, Corporate Employee Relations manager.

Ron has been with Digital for more than six years as a Personnel attorney in the Law Department.

In his new role as Corporate Personnel Policy manager, Ron will be responsible for providing leadership and strategic direction for policy development in the company. He will also have responsibility for monitoring external trends and their implications for Digital and its employees to position our policies for the future. Additionally, he will be a member of the Corporate Employee Relations staff. Ron is a graduate of Brandeis University and Suffolk University School of Law. ●

Software support for Rainbow no longer available

IN-DEC Customer Services, Digital's internal Customer Services organization, reminds all internal Full System Service customers and Software Advisory Service customers that software support for Rainbow computers ended as of Dec. 31, 1989.

Telephone assistance for Rainbow software products is no longer available through the current Full System Service Agreement.

This change pertains only to software support. Hardware product services will still be available.

IN-DEC Customer Services Contract Administration will change the affected contracts to a hardware-only service contract. Any questions regarding this change should be directed to your contract administrator. ●

New group formed to capture document imaging opportunities

An Imaging Sales Group has been formed to generate incremental business by addressing and closing document imaging opportunities. With document imaging, a user can deal with an actual computerized representation of a document, instead of using word processing or computer-generated words and pictures.

Kerry Bensman, U.S. Imaging Sales manager said, "Document imaging represents a new technology in the marketplace which Digital is well positioned to capture. It is a leading edge technology that most of our current customers believe will give them a competitive edge in the '90s. They are making initial decisions as to who their suppliers will be at this time. Digital's goal is to be the preferred vendor and capture the business that reflects our customers' first investments in the technology."

Kerry brings a wide range of experience to the U.S. Imaging Sales Group. Since joining Digital in 1969, he has had extensive experience in field sales and support. He managed an engineering organization and spent several years in marketing. During the last five years, he has also coordinated Digital's imaging strategy with several of our key multinational customers and CSOs.

Says Kerry, "Because this is a new technology and a new opportunity for Digital, we need to react quickly to capitalize on our product strengths and the imaging investments we have already made. It is clear to us that our window of opportunity to establish Digital as the leading supplier of document imaging solutions extends through FY91. We are ramping up our sales and sales support expertise to meet the demands of our customers. The U.S. Imaging Sales Group is in place to work with account teams to respond to this demand and capture business this fiscal year."

Account managers should call the U.S. Imaging Sales Hotline at DTN 296-4441 or (508) 480-4441. Mail can be sent to Kerry Bensman @UPO or JAWS::BENSMAN. ●

DECtrade internship: Early training ensures field readiness

Twenty-three Software Services consultants from seven countries came to Marlboro in August and November for the DECtrade Internship Program, an intensive course in DECtrade, Digital's software platform for customized trading system solutions.

Developed by the Financial Systems Group (FSG) of the Corporate Systems Group (CSG), DECtrade answers a critical need shared by securities trading and investment organizations worldwide — to access, analyze, and manipulate market data in real time.

Bankers Trust of London has already implemented a DECtrade-based trading room, equipping 250 trader/analysts with VAXstation 3100 systems. "Bankers Trust now has one of the most technically advanced trading rooms in the financial industry," said Roger Lang, FSG marketing consultant. "This project represents the kind of business that Digital is pursuing now — systems and enterprise integration.

"We recognize that systems integration projects are extremely complex," Roger continued. "Implementing a trading room project can take from 18 months to two years. The DECtrade program calls on the full range of Digital's systems integration skills and programs, and the market is showing a lot of interest."

"For these reasons," said John Howard, principal software engineer, "we decided to train the field as early as possible to support the sales effort, customers, third parties, and ultimately, DECtrade projects. The internship was an intense learning experience, progressing in content from concepts to applications programming. The interns will now train their area colleagues to ensure full field readiness."

The concept of early training to support major products has been endorsed by the DECtrade interns, who came from Japan, Switzerland, the United Kingdom, France, Australia, Canada, and the United States. Many interns also appreciated the opportunity to establish contact with peers they might never meet otherwise.

Claus Joergensen, a SWAS consultant from Zurich, commented, "Early training is a must for a major product like DECtrade. It would be good to have training in phase one of product development, very good to have key development people involved. We have received an RFP (request for proposals) and I must submit a proposal within the month. I now have the technical knowledge to do it and I understand the benefits to the customer. Without this training, I would have to call for help from the U.S."

Malcolm Melville of the London ACT said, "I'll be applying the training immediately. I'm working with a third aprty and marketing people now to devise the European marketing strategy, and I'm working on a DECtrade demo. The key thing is that the window of opportunity in Europe is fairly small right now. This training greatly improves our chances to succeed."

Roger concluded, "DECtrade gives us strategic penetration into the financial services industry, a competitive advantage. Gaining control in the trading room, the front office in this industry, will put us in a strong position to expand our presence throughout the enterprise." ●

AITC hosting career seminars

In an effort to provide employees with career information about opportunities in software and systems engineering, the Artificial Intelligence Technology Center will sponsor a series of career seminars at DLB5 in Marlboro on Jan. 19 and again on Jan. 26.

Technical presentations and discussions will be sponsored by nine groups in the AITC; groups from High Performance Systems, including the VAXcluster Technical Office, VAXcluster Systems Engineering, and the HPS Systems Software Engineering Group; Product Marketing, including the Corporate Systems Group, CIM Marketing, Product Development and Engineering Systems Group; and the Personal Computing Software Group.

The positions available are technical with the emphasis on software and systems engineering. The positions vary from intermediate to principal engineer and supervisory positions.

For more specific information, look in the AIADM::SW—SEMINARS notes conference which was created for this event. You may also send mail to AIADM::SEMINARS to leave your name and VAXmail address and to specify your interests. ●

The Marketplace

How 'The Marketplace' works

"The Marketplace" is a free service provided by *Digital This Week* for Digital employees in the Greater Maynard Area. Ads are printed on a first-come, first-served basis, as space allows, regardless of category. If your ad is time-sensitive, keep in mind that ad volume is heavy, so you should allow four to six weeks for your ad to appear in print.

1. When submitting an ad, please include your full name, mailstop, and internal telephone number (DTN).
2. Please submit only one ad at a time. Multiple submissions will not be accepted. Ads will appear only once.
3. Ads must be submitted in writing (hard copy) and sent to Marketplace, CFO2-3/K23.
4. DTW does not print ads for services (babysitting, snow-plowing, etc.) or profit-making enterprises. Ads must be worded clearly, typewritten or printed, and in good taste. DTW reserves the right to edit for space.
5. Ads can be cancelled simply by calling the Marketplace office. If an item has been sold, please cancel the ad so that space can be opened for another listing. If you have any questions about the Marketplace guidelines, call the DTW office at DTN 251-1308.

Appliances

GAS DRYER,exc cond,4 yrs,beige,in storage for past 3 yrs,$175 firm,tom,264-5224

ELECTRIC STOVE,Corning,smooth top, self cleaning, very efficient, $250, Mike, 289-1108

MICROWAVE,Hitachi,small, $25, Velvet, 227-3277

APPLIANCES FOR SALE,moving,must sell,gas dryer 2yrs,2 air conditioners,microwave,Henry,296-3015

ELEC HOT WATER HTR,50 gal,used 2 yrs,fits into crawl spc,exc cond,$99,Dan,234-4855

Cars

'80 DATSUN 210,htchbk,168K mi,left side body rust, $100/BO, Roger, 297-5401

'88 FORD RANGER GT,15Kmi,loaded,mag whs,take over pymnts $285MO/or$1100,must sell, Tammy,244-6901

'86 MAZDA RX7,am/fm/cass,a/c,snrf,44K mi,chapman,exc cond,$8650/BO,Julie, 297-3694

'81 TOYOTA STARLET,st,am/fm,new brks,rear shks+muff,cood trans,$900/BO,Dottie,225-4558

'73 TRIUMPH TR6 CONV+'74 TRIUMPH TR6,C250 eng,5spd,sell together,$2,700,Kathleen,267-2661

'74 CADILLAC DEVILLE,brn,4dr,425 eng,body has rust,runs good,winter car,$500,Kathleen,267-2661

'81 AMC SPIRIT,2dr,4spd,htchbck,am/fm,100K mi, $500, Carol, 227-4122

'88 HONDA ACCORD LX,4dr,5spd,a/c,am/fm/cass,19K mi, $11,5K/BO,Judy, 240-6123

'85 NISSAN 200SX,coupe,pewter,5spd,ps/snrf/stereo ,very clean,85k mi,$4,300/BO,Theresa,237-3012

'89 TOYOTA COROLLA GT-S,loaded wht/blu int, meticulously main,must sell,$11.5K,Beth,223-3137

'82 HONDA ACCORD LX,blue,2dr,am/fm/cass/snrf, auto,135K mi,exc cond,$900, Deb,296-3444

'86 MERCURY LYNX,5dr htchbck,auto,stereo,4 new tires,exc cond,$3300, Don, 223-2767

'85 TOYOTA CORALLA,4dr sedan,silver,84K mi,exc cond,$4000/neg,Gloria, 274-6924

'81 BMW 320I,5spd,wht,am/fm/cass/garaged,ac,snrf, radials,exc cond,$4295/BO, Manjit, 223-3702

'89 HONDA ACCORD COUPE LX,5spd,exc cond,fully loaded,30K mi, $12,9K, Phyllis, 297-6463

'75 MERCEDES, 240D, well mtnd, garaged,exc cond, $4500/BO, Phil, 268-3351

'87 CHRYSLER NEW YORKER,24K mi,4dr,all power,exc cond,$13.5K,Charlie, 223-8820

'78 VOLVO WAGON,origional owner, very good cond, $1200, Virginia, 223-6972

'88 MAZDA B2200 PICKUP,auto,21K mi,fact warr, am/fm/cass/,blk w/gray,$6400/BO,Ellen,276-8960

'82 SUBARU GL, 4dr,5spd,a/c,am/fm/cass/,78K mi,reliable winter car,$1850,Aram,297-5079

'84 HONDA PRELUDE,nvy blu,ps/pb,fm/cass,sun/moon rf,5spd,exc cond,$4900/BO,Jamil,223-2135

'87 NISSAN SENTRA, 5spd,2dr,lt blue/gray, 24K mi,am/fm, exc cond, $4900, Holly, 234-5430

'86 HONDA CIVIC WAGON, 5dr, 5sp, exc cond,new tires, fm/cass,white,$5100, John, 247-2250

'86 BUICK SKYLARK LIMITED,4dr,6cyl,49K mi,new tires/brakes/muff,cruise,$6625/BO, Heide,297-7114

'86,MERCURY LYNX,45K mi,2dr,manual,good cond,maintained well,$2250/BO,Alan,229-7710

'86 NISSEN SENTRA,2dr,dk blue,5spd,hi-comp, am/fm/cass,40K mi,exc cond,$3300,John,249-4138

'80 CHEVY CITAÏTON,4spd,good cond,92K mi,ps/pb, am/fm cass,new tires,$750,Pete,276-8748

'80 OLDS CUTLASS ST WGN,at,ac,6 cy,good cond,no rust,129K mi,$900, Dale, 291-7208

'88 ACURA LEGEND CPE LS,auto,persian red,full equi, 22K mi, $23.5K/BO, Hugh, 272-7113

'66 FORD FAIRLANE CONVIRTIBLE,lots of work, look+runs beautiful,$4200,Bill,268-3347

'84 TOYOTA CELICA GT,white,5spd,a/c,cruise,no rust/dents,65K mi,from CA,$6000/Lori,291-7443

'79 MERCEDES 240D,oriental red w/tan int,new exh,exc cond,$3995/BO,RINI, 276-8170

'86 TOYOTA SUPRA,met blu,5spd,targa top,ac,fully equ, exc cond, $10.9K/BO, Lenny,296-3377

'88 BMW 528E,41K mi,burgandy,auto,immac,ac,dolby sound,all extras,$20,5K,Les, 223-6080

'79 FORD LTD,4dr grn sedan,am/fm,ac,recent radials,cond,110K mi, $500/BO, Angela, 291-9434

'74 VW BUG, semiauto, nw muff,htr boxes,body in good cond,restore or for parts, BO, Liz, 249-1781

'81 MONZA,2dr,4spd std, 4 cyl,80K mi, reblt [6"transm"n,runs good,$395/BO, Dick, 297-4409

'87 CAMARO,red/blk int, 5spd,6 cyl,39K mi, fm/cass, $5975, Joe, 244-7549

'85 RENAULT ALLIANCE,5spd,63K mi,2dr,Charcoal,no rust/dents,exc trans,$695 firm, Helen, 297-4115

'87 HONDA PRELUDE, 5spd, exc cond, $10K/BO, Lori, 276-8552

'86 FORD TEMPO,2dr,ps/pb,am/fm,43K mi, exc cond, $3300/BO, Jamie, 241-4174

'84 CUTLASS SUPREME BROUGHAM,V8,t-top,39K mi,twng pkg,pwr every,immaculate $7K/BO, Alan, 223-0951

'79 FORD FAIRMONT WAGON, auto, good cond,runs well, $500, Tayna, 234-4862

'85 PONTIAC FIREBIRD,22K mi,V6,am/fm/,a/c,tilt wh,1 own,$5900/BO, Pat, 297-4978

'77 280Z DATSUN, blue, one owner, needs work, $700/BO, Nancy, 289-1250

'83 ALFA GTV-6, A/C, 5 spd, sunrf, ex run cond, leather int, $3000/BO, Theresa, 291-9164

'85 OLDS CULAIS,2dr,auto,air,stereo,new brakes+tuneup,71K mi,$3995/BO,Bruce,229-7400

'79 MAZDA GLC,wagon,90+K mi,little rust,runs good, $500/BO, Eva, 291-8645

'84 HONDA ACCORD LX HATCHBACK, 1 owner, sunroof, 5 spd, exc cond, $3750, Susan, 223-6199

'87 ISUZU TROOPER II LS, well maint, exc cond, 4dr,4wd,a/c, 5pd, pb, ps, 60K mi, Don, 226-5917

'88 TOYOTA TERCEL,coupe,maroon, 5spd,am/fm/cass, 40+mpg,great for commuting, Holly, 226-2134

'88 FIREBIRD FORMULA 203,V8,red,5spd,t-tops, loaded,41K mi,exc cond, $9600, Brian, 297-6777

'87 GMC JIMMY,full size,305 V8, 4wd, Gray+Red,Auto,Loaded, $14K, Ronald, 223-4567

'87 CHEVY S10 BLAZER,4x4,exc cond,V6,5spd,ac, ps/pb,tahoe pkg,49K mi,$8900/BO,Andrea,240-6213

'85 FORD BRONCO II XTL,metalic gray, high mi,exc cond, $6500, Paul, 282-1711

'81 CUTLASS SUPREME, 2-dr,6 cy,am/fm,runs well, 22 mpg,clean,little rust, $1450/BO, Len, 234-4751

'86 CHEVY Z28,auto,black,39K mi,clean car,$8500/BO,Caroline, 291-7735

'80 PORSCHE 924,repairable,spc edit,13K mi,dk brn,hit in front,$400, Thomas,237-2410

'84 RABBIT GTI,upp+lwr stress bars,header w/2"exhau sys,and more,$3600,Thomas, 237-2410

'87 NISSAN 300ZX,loaded,5spd,ac/am/fm/cass,t rf,exc cond,security,50Kmi,$13.5/BO,Rose,225-4737

'84 DODGE CARAVAN, many opt, exc cond, $5000, Henry, 296-3015

'84 TOYOTA PICKUP,4spd,4cyc,good cond,std, am/fm/cass/, $2000/BO, Bill, 283-6289

'86 TOYOA MR2,s/r,a/c,cruise,am/fm/cass, more,$6000, Woody,244-6137

'82 BUICK SKYHAWK,ps/pb,ac,ster cass,new tires,brakes+exhau sys,$1900/BO,Debbie,276-8967

'88 VOLVO 240 DL,sedan,5spd,like new, $13,9K, Jim, 226-6857

'87 FORD ESSCORT GL,dk blu,a/c,am/fm,auto,56K mi,2dr,exc cond,Linda,226-5655

Furniture

WATERBED,queen,inc heater/baffles, frame has 6 drawers,$250, Barbara, 273-5302

OVAL COFFEE TABLE, top is framed for glass, $45, Mary, 223-2130

SOFA W/ MATATCHING CHAIR, trad. brn+wht,tweed, $170, Mary, 223-2130

COUCH,sectional,4 piece, chocolate brown, $79, Velvet, 227-3277

DINNING ROOM TABLE,w/inlaid mirrors,solid hdwd,4 h/back chairs,$390, Velvet, 227-3277

WATERBED,w/mattress,2yrs,heater/liner,6 draw,dk pine w/side bump,exc cond,$300/BO,Ida,245-5201

BAR, w/4 stools, 52"L x 41"H x 17 1/2"D,$40.00, Len, 234-4751

WALL UNIT,contempo woods, 63"L X 72"H X 16 1/2"D, $150, Len, 234-4751

MATTERSS/SPRING, double, top quality like new, $250, Nancy, 249-4587

DINING ROOM SET,Contemp,glass top w/marble base,never used, $500/BO, Cheryl, 223-2266

BABY'S CRIB,Simmons,exc cond, $75/BO, Stephen, 223-3966

BED AND FRAME,queen size,good cond,$40/am desk good cond,$30,Mitch,237-3226

BEDROOM SET,dk pine,like new,dresser,mirror, chest,night stnd,hd brd+frame,$700,Ladan,226-7123

DINING ROOM SET,scandinavian design teak,table w/4 chairs, $300,Linn, 234-4050

SOFA AND LOVESEAT,contemporary,great condition,light brown,$750,Timothy,297-7959

DESK, small,good condition,$40,Mitch,237-3226

Miscellaneous

CHANDELIER,wood+cane hexagone, lg globe, $25, Claire, 223-7159

CHANDELIER,5 candle,brass antique,$25, John,296-3299

TV,Heathkit gr-900 25",color,medit oak cons cab,comp manual,$75/BO, John,296-3299

KITCHEN CABINETS,sink,countertops,built-in desk,BO,John,223-9221

STERO CONSOLE,old scott,med style cab,ex cond, am/fm,rel-to-rel,tape dk,$150,Dian,223-3062

SEWING MACHINE,Kenmore,zigzag,model 33 w/cab, $110, Mary, 223-2130

TRACK LIGHTS, 8' trk + 2 flooda, 1 reg, $75, Claire, 223-7159

NINTENDO,1 yr old,good cond, BO,Paula,568-6054

TIRES,5 on rims,bala+ready to go,fits 510 htchbck,Sears p165/80R13 M&S,$125,Bob,224-6579

HIGH HEEL SHOE'S,womans,sz 9,brand new,red,tan, blk satin,blk patten leath,$10/pr,Ellen,293-5441

ASSORTED BABY ITEMS,Century car seat/$15,tot-loc seat/$15,maple hichar/$15,swing/$25,Deb,296-3444

AQUARIUM,10 gal,pow htr/filter,wrought iron stand, thermo,clnr kit,$45, Mary, 223-2130

POWER SNOW SHOVEL,Toro,Model 383 10 12", $45, Mary, 223-2130

CAMERA,Minolta X7000,35-105 zoom lens, excellent condition,$400, Linda, 291-8792

IBM-CLONE,640RAM,turbo,4.77/8.0 meg,2-5 1/4+1-20 meg disk drv,dot matrix prnt,$775,Howard,235-8276

TIRES,Landrover radials,4,P235/75 R15, wht ltrs, steel belt, $125/for 4, Bob, 226-2282

PET CARRIER, coverd litter box,comb,nail clipper, for lg cat,all clean,$25,Ginger,287-3325

CHAIN SAW,Craftsman,2.3/16, used twice,ex chain,orig $199.86,sell,$129.,Lars,244-7586

RADIAL SNOW TIRES, 2 for 15",$10 ea, Len, 234-4751

LANDSCAPE TIMBERS, 10 - 6" X 8", $5 ea, Len, 234-4751

ANIMATION CELS,Disney,Mary Poppins,2 cels,unfrmd photostts Poppins/horse,$500/BO,Paul, 262-8444

CAMCORDER, Sony CCD-F30, 2-page digital super-Imposer, all acces incl, $600/BO, Bob, 223-4074

VGA MONITOR, Amstrad, 12" screen, w/cable but not card,use w/VGA or VGA compat,$125,Teddy,262-8381

ENCYCLOPEDIA, 30 volume updated edition,grt cond, $900/BO, Mike, 275-3360

DOWN PARKA, Gerry, small;SKI BOOTS, Raichel, size 6, brand new,both $100, Betsy, 223-1444

COMPUTER, Televideo model #910, $100, John, 248-4141

SNOW TIRES, on rims for,79-81 Honda Accord,5K mi, $30/BO, John, 223-4698

RYOBI, 10" radial arm saw,w/stand and router adapter,$250/BO,Steve,289-1963

HOME COMPUTER,Laser 128,5 1/4"drive,color mont,joyst,+12 games,basic,$550,Ken,226-7378

FREE POOL SOLORCOVER,for 20'x40'pool,w/roller+ crank,like new, you pick up, Elaine, 272-7121

FUR COAT, Silver Blue Fox,size 5/6,5yrs old, good cond, $250, Cathy, 262-8342

FUR COAT, Blue Fox jacket, size small,orig. $2000, sell for $1500, Ann, 249-4207

COMPUTER,Rainbow/software/LA100,hd disk,lots of software+LA100 printer,BO, Jerry,223-9100

DIAMOND RING, ladies,emerald cut, .78 carats w/baquette, sell $1800, Joe, 275-2455

KINDER CLIMBER,Child life,6'gym ropes,slide, platform,$50, Joan, 297-7277

CHILD LIFE TODDLER GYM, $75, Joan, 297-7277

TV,Sony 26",oak cab,Sim stero good cond,$200/BO, S.Le, 275-3163

VCR,FISHER,ex cond,w/orig box+papers,$150, Glen, 237-3725

TICKETS, Daytona 500, Feb 18, 1990, $80/pair, Yvonne, 291-8542

VIDEO CAMERA,'86 GE,comes w/all cables and pwr supp,a good buy,$300/BO,Dick, 223-4923

DEC RAINBOW PC100A E/W RD51,monitor + LQP-2 prntr,sftwr,and more,$700, Steve,291-9613

STROLLER,$20,playpen,$20,snow tires P215/75 stud,$50, Dennis, 223-8424

FUR COAT,beaut full lgth,rabbit,sz 8,exc cond,$75.00,Sam,223-1721

TYPEWRITER, IBM electric,very old,Francine, 297-3586

COPIER,Cannon PC 25,like new,enlarge+redu, $800/Copier table,$125,Paul,223-7122

Motorcycles

'72 MOTO GUZZI,750cc Ambassador, w/sidecar,many extras,good cond,$2000, Peg, 282-1268

'83 HONDA,V45 Sabre,mint cond,12K mi,$1400/BO,Cedric,275-3474

Pets

TERRIER,Lakeland,1m,1f,show potential, exc ped+temp,$500 firm,Karen, 234-4097

BOA CONSTRICTORS,1/red tail m,1/common f,very tame,exc cond.5'1/2',$300ea/$550pair,Matt,237-3291

LAB PUPPIES,AKC yellow mother,non-AKC blk father, whelped,ready Jan,$100,Laurie,240-6225

Real Estate

LEOMINSTER,2bdrm twnhse,1.5ba,study,pool,$89.9K, 2.5K towards closing,Annette,223-0184

ACTON,9rm,4bdrm,2.5ba,2400 sq ft,colonal,walk to sch+store,$279,9K,Geoff,276-9985

YARMOUTH,time-shr Cove at Yarmouth,hol flt,slps 4,2ba,jacuzzi,pool,more,$8700, Michael, 297-3303

LEOMINSTER,2 yrs,2bdrm cor-unit twnhse,3flrs, 1.5ba,frplce,furn,ac,$119K, Barb,234-4275

FRAMINGHAM,2bdrm condo,pool,tennis,assum loan,$89,9K, Kathy, 225-5694

FRAMINGHAM,finest condo bldg,1 bdrm,970 sq ft, reservior view, moving, Chuck, 296-3339

WORCESTER, 4bdrm Col, 2.5 ba, 2 car gar,2 yr old, $210K, Jason, 228-5413

FRAMINGHAM,2bdrm condo,pool,tennis,assum loan,$89,9K,Kathy, 225-5694

NEWPORT R I,wtfrnt,time share,newpt bay club,2bdrm,must sell,$4500,Joanne,276-8159

MERRIMACK NH,3bdrm twnhs,1.5ba,deck,gar,gas/h, pool,tennis,$113.9K,rent w /o to buy,Jan,272-7434

NORTHBORO,4bdrm home,2ba,2frplc,1/2 acre,8 yrs,mint cond,$179K, Paul, 292-2470

VERO BEACH, FL,2bdrm condo,2 ba,on golf cor,2 mi from beach, $49.9K Bob, 234-4925

SUGARBUSH VT,3bdrm condo,2ba,top lr,cov deck,furn,trail side,$65K,Tom, 225-5043

DRACUT,2 bdrm condo,4 yrs old,prvt hilltop loc,$86.9K, Steve, 248-4165

HAVERHILL,2-fam, owner occ w/steady tenant, 3 yrs old,sep util,full appl,$131,9K, Dawn, 223-7963

LEOMINSTER,2 sty twnhs,2bdrm,2.5 ba,fpl,gar,appl, bsmt,$110,8K, Tom, 291-9649

WORCESTER,Ft.Rock wtrfnt, twnhse, 2bdrm, 2ba, jacuz, appl, exc.loc, $159.9K, Kim, 291-8102

HARWICH,3bdrm,2 ba,enclosed prch,lg fam rm,1 car gar, near golf corse, $170K, Gary, 297-7659

FRAMINGHAM, 2bdrm condo, pool, tennis,assumable loan,$89K, Kathy,225-5694

ACTON,2bdrm condo,kit reno,new appl,near DEC, facils,tennis,pool,$113K/BO,H.Haieh,223-2380

STERLING,3bdrm,ex.ranch,on cul-de-sac,sale/rent, private,near h-way,$159.9K, Lori, 297-5615

MERRIMACK NH, full dormed Cape,7 rms,eat-in-kit,1 3/4 ba,full base,1/2 acre,$135.9K,Len,234-4751

NORTHBORO,2 bdr condo,pkng,deck,pool,lndry,walk to center/school, $89.9K, Susanne, 291-7197

FRAMINGHAM, 2 bdr, condo, pool, tennis, assumable loan, $89K, Kathy, 225-5694

WORCESTER, twnhse,2 lg bdr, 1.5 ba, lndy rm, financing, $93K, Kate, 223-2724

NASHUA NH, 7 rm ranch,1 1/2 ba,3 bdrm,full base, exc cond, $139.9K, negot, Barbara, 223-5761

LINCOLN NH,Loon Mt,Village,wooded lot,4 seasons, exc view of slopes, $49,995, Ken, 291-9988

FRANKLIN, 2bdrm,twnhs,1.5 ba,applncd,ac,frpl, prvt/lwn,nr FKO/495, $115.9K, Mark, 247-2313

ARLINGTON,7rm,3bdrm,2ba,9183sq.ft, hrd wd flr,new oak kit, full/apl, frplc, $219K, Chris, 249-1500

WORCESTER, Nelson plc, Col, 4bdrm, 2.5ba, 2 car gar,$210K, Jason, 296-5413

HOLLIS NH,yr rnd Ranch,on Silver Lake,many new features,$78.5K,Len, 234-4751

LEOMINSTER, 2bdrm twnhs,1.5 ba,cntrl a/c, tennis,pool, $94K, Ann, 223-6282

FRAMINGHAM,lg 5 rm, 2bdrm,mod condo,pool,a/c, sunny corn/unit,$89.9K,Rich,291-0421

BOLTON,new cape chalet,4bdrms,3 ba, many extras, 5 1/2 acres,$255K,Alex,296-4358

SHREWSBURY,3bdrm split,cathedr,2ba,2 car gar,beaut lot,$189K, Pete, 237-2003

NEWPORT RI,timeshare unit,Inn on harbor,slps 4,kit/ette,must sell,$5000/BO,Frank,223-2854

WESTBORO,Andrea estate,4bdrm,2 1/2 ba,firplce, 2600+sq ft,3/4 acre lot,$328.5K,Thomas,237-2410

BURLINGTON,1/2 acre,lg 8rm ranch,4bdrms,gar,lg deck,frplc,full base,$189.9k,Barb,273-5302

BENNINGTON NH,ski slope studio condo, w/loft+firplce,fully furn, $90K,Art,244-6280

MARLBORO,4 lvl,twnhse,t+rms,1.5ba,lndry,blt ins,a/c,low fee,$165K,Diane,297-3829

WORCESTER,2 fam,sep util,5rms ea,full bsmt,2car gar,exc loc, $159.9K, Jackie,297-3773

ACTON/NAGOG WDS,twnhse,2bdem,1 1/2ba,firplc,full bsmt,deck,tennis,1 mi/AKO,$140K,Susanne,276-9191

GARDNER,1-studio,1-1bdrm,1-2brdm,tennis,pool, will furnish is so wishes,Jeanne,245-5195

HUDSON,3 fam,attractive,3bdrm w/$100 MO income, full bsmt,sep util,$197K,Janice,273-5536

BOOTHBAY ME,souther views overlkng river,ready to build,exc subdiv,$90K,Glenn,296-5142

LONDENDERRY,4bdrm,1 3/4ba,frplce,2 skylghts,coal /wood stv,extras,$149.9K,Eileen,297-4541

Recreational Vehicles

SNOWMOBILE,Evinrude quiet flite, w/sleighmate tagalong,1059 mi, $1000, Diane, 223-5933

SAILBOAT,18ft,Matrix 5.5 catamaran w/shln tra, extras,multi color sails,$1895/BO,Rich,225-4037

Rentals

WESTON,sunny,clean,7rm ranch,$1275/Mo or buy $235K,Russ,297-3869

LEOMINSTER,2bdrm twnhse,loft,full appl,a/c, tennis,pool,$725/MO+util,Andy,237-3390

MAYNARD,4rm,nly reno,walk to DEC,priv pkng,lg yrd,ava now,$550/MO+, Ray,227-3323

HUDSON,2bdrm condo,full appl,a/c,w/w,terr.lg yrd,laundry,$850/MO+h/w,Linda,262-8402

BURLINGTON,4bdrm hse,3ba,2frplce,2 car,w/d,alarm, no pets,$1300/mo+util,Marilyn,275-3421

SHREWSBURY,2bdrm,2nd flr,appl,garage,no pets,$750,MO inclds ht/htwtr,Tracy,234-4681

SHREWSBURY,1bdrm,fully appl,wtrfrnt,pkng,avail Jan 16,4750/Mo,Kim,291-8102

AUBURN,7rm,nr Mass Pike,quiet,deck,shed,no pets,$600/MO+util,Gab,223-7929

NEWBURYPORT,2bdrm,1 1/2 ba,victioran 1st flr condo,all appl incl,$850 MO+util,Phyllis,297-6463

WORCESTER,spacious 2bdrm,w/w,appl,private, driveway,yard,$550mo,util inc,Lea,278-4436

MERRIMACK NH,twnhse,2bdrm,1.5 ba,sunny end unit,wooded yd,ava Feb 1,$775/MO,Donna,223-6533

ACTON, 4bdrm, 2.5 ba, stdy rm, $2000/MO,avail now, Li-Hai, 244-6786

HUDSON, 1bdrm,off st pkng, lg yard, $440/mo+util, 1st,last,1mo sec,Fred, 244-6306

HOOKSETT NH,1 bdrm condo,inclds,ht,pkng,$525 mo, Linda, 291-8792

BRADFORD,2 lg bdrms,1.5 ba lg,fully appl,kit, attic,w/w,w/d hook,gas,$800,Sandra,275-3169

JAMAICA PLAIN,2 and 3 bdrm,apts,w/ht,multi fam,$950+$1050 mo,Gene,235-8025

HOPEDALE,1/2 dup,3bdrm,DR,Fam rm,lg kit,encolsed porch, $800 + util, Ernest, 226-5559

BILLERICA studio,clean,compact,st pkg,$450 incl util,nonsmkr,no pets, Jeanne, 226-7244

NEWTON, 4bdrm, eat-in-kit, yard, pkng, wash/dry, near T,mint cond,$1500,Rivka,259-6622

WAKEFIELD,2/3bdrm Cape,remodeled,option to buy,$895 mo rent,$149.9K buy,Bob,223-8250

WORCESTER, 1 bd condo,fully appl,kit,din,liv, w/w,pkg, Clark Univ.area,$495/mo, Liz, 268-3179

WORCESTER,condo,w/option to buy,3rd fl,2bdr,2ba, ac deck, near Rt 20+144, $650, Dick, 297-4195

HUDSON, 1 bdr condo, w/w,dshw/dsp,ac,w/ldry rm, ht/hw/ckg gas incl, $600/mo, John, 223-8407

MALDEN, 1bdr condo,liv,kit,w/w,pkg,wash.a/c,near rts 93/60/16, $695 mo + elec, Monita, 241-4079

N.BILLERICA,3 brdm house,1 1/2 ba,eat-in-kit,oak cab,hdwd flr,deck+yard,$850mo+util,Laura,287-3216

WORCESTER,2 bdrm,off Cohasset St,clean+sunny, $500 mo+utilities, Ted, 234-4320

ACTON CTR,2 bdrm,priv garage,a/c,w/d,$800 mo incl heat + utilities,Sandra, 263-7612

FRAMINGHAM,rm for rent,w/kit,priv ba,laund,pkng, $350 + 1/2 util mo, Lauree, 292-2120

WORCESTER,2bdrm,hrdwd flrs,lg kit,cover deck,nr 290/495,$500/mo,Vic,241-3758

WESTBORO,2bdrm,1 full ba,avai immed,$650/MO inc ht,Eric,297-3278

MAYNARD,twnhse,2-3bdrms,loft,w/firplc/skylight ac,pool,full appl,$1150 plus util,Susan,282-1256\

WORCESTER,5rm,2bdrm,in 2 fam,nr 290/bus line,ava Feb 2,$455,Marjorie,291-9941

LINCOLN,1bdrm condo,clean,fully appl,greenhouse window,close to DEc,walk to T,Nancy,228-5225

Roommates

UPTON,m, nonsmkr, rm in single home, $375+1/2 util, Cheri, 529-4472

MAYNARD,male, furnished rm, sep kit+liv rm,$55 per wk all util included,Richard,226-6157

MARLBORO,shr 3bdrm hse,1 1/2 ba,washr,yard, close to 495,$333/mo+1/3 uti,ava imm, Joanne, 297-2235

MARLBORO,m/f,nonsmk,sh 2bdrm apt,Royal Crest Est, clb hse,pool,w/d,$397.50+1/2 utl,Lisa,228-5447

FLORIDA,to share ocean front condo,energetic woman,55+,share driv,1/90,508-526-3791,Pauline

SHREWSBURY,m/f,own suite w/priv bath,new,furn, $110 wk,+1/3 util,Bahar, 291-8136

ACTON,m/f,nonsmk,share 2bdrm condo,all app,w/w, quiet,pool,avail imm,$360+1/2 util, Jae, 241-3437

HUDSON, 2f + dog shr, 4bdr house,furn,1.5 ba,lg yd,deck,washr/dry,$275+1/3 util,Stan, 268-3275

FRAMINGHAM,male/nonsmkr,share 3bdrm dup,yard,hwd flrs,wash/dry, $275+1/3 util,David, 291-8198

ACTON,m/f,shr hse,w/2m, lrg kit, lr/dr,3 bdrm,1.5 ba, quiet area, $365 + util, Kevin, 226-5864

WESTFORD,to share 3bdrm,private,w/garage,nonsmk, furnished, 12/1, $350mo, Priscilla, 226-6663

SUDBURY, m/f, 35+, nonsmkr, shr lg, 4 bdrm Col home, $400/mo incl util, Marilyn, 274-6673

ACTON, m/f,nonsmkr,share 3 bdrm,w/d,quiet,1 1/2 ba,one cat,$450+1/2 utilities,Suzanne,223-3318

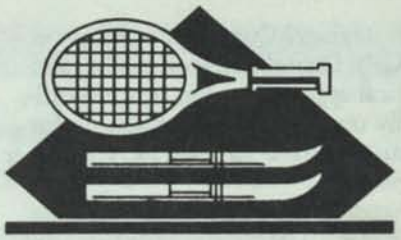
MARLBORO,m/nonsmkr,shr royal crest apts, 2bdrm,$377.50 +1/2 util,Kanak,225-6130

MERRIMACK NH,shr lg home,garage,w/d,own liv rm,nonsmkr,$375/mo+1/2 util,Barbara,264-1127

FRAMINGHAM,shr,3bdrm ranch,1 1/2 ba,quiet loc,a/c,yard,pkng,$408+1/3 util,Glenn,234-4770

MARLBORO,f/shr 3bdrm twhse,rte 20,deck,wash/dry ava now,$360/Mo,includes ht+hw,Angie,296-3634

CLINTON,m/f,to shr,6rm hse,no pets,$550 inclds util,priv neigh,wash/dry,Michele,276-9398



Sporting Goods

EXERCISE BIKE, Voit tre,exc cond, 2 yrs, $100/BO,Mary Ellen, 223-2810

DIRT BIKE,Univega,barely used,$125,Liz,227-4472

LADIES SKI PKG,dynastar 155 w/salomon s137 bndgs,Scott poles,$65,Natasha,235-8458

SKI BOOTS,Technica,sz 10.5,Alpine,sz 7.5,$25, Koflach sz 8M FREE,Natasha,235-8458

SKI BIB PANTS,sz L,$30,Natasha,235-8458

SNOWBOARD,Burton Elite 150,exc cond,orig $400, sell for $150, Cindy, 223-2817

CANOE,Grumman,15',w/2 seat cushions,paddles,3 life jkts,$200, Len, 234-4751

SKI'S,Rossignol Brio II 190cm,Soloman 637 bind,all in good cond,$60/Bo,Rich,225-4037

CROSS-COUNTRY SKI'S,Trek,w/herling boots/binding/ poles,wom sz 6,$100/BO,Jackie,221-5737

ROWING MACHINE,Tunturi + DP Exercise bike,sold as set, $85, Doug, 282-1186

EXERCISE MACHINE,Ajay, for stomach+back,$50/BO, Ken, 291-7223

HOCKEY SKATES, Bauer, boys, sz 6/7, worn once, $40, Mitzi, 293-5258

SKIS, K2 160's, good for just trying, $20, Mitzi, 293-5258

SKI BOOTS, Kofach, used 1/2 season, mens/boys, sz 7/8, $55, Mitzi, 293-5258

BIKE,Fuji Jr, 10 speed, girls, practically new, $200/BO, Donna, 291-8370

GOLF CLUBS,3 woods,mtch set,irons w/new grips, wedge,putter,good cond,$150/BO,Frank,223-4029

SKI'S,Rossignol,Salomon bndg; BOOTS,Nordica; POLES,Scott, $200/BO, Phyllis, 276-8919

SKI RACK, Thule, hlds 2 pairs, top quality, $50, Nancy, 249-4587

ROWING MACHINE,Precor 612,like new, $100, Karen, 297-4953

SKI'S,Rossignol,stratix-II 170CM,Solom bndgs, poles,$125, Mike, 275-3360

EXERCISE BIKE,Sears,deluxe triple action, exercise bike, exc cond, $75/BO, Laura, 297-7460

SKI'S, men's 180cm,sz 10 1/2 bts,poles,bndgs, child,130cm,sz 2 bts,poles,$95,George,223-8713

TOBOGGAN, L L Bean,w/pad,never used,$85, Ray, 275-2273

ROWING MACHINE,Precore 615,new,elec display,$95,Dave,291-7136

Wanted

WARDROBE, any condition, Holly, 226-2134

BOOKCASE, pine of light oak,about 3X3, Patrick, 251-1636

MOVIE CAMERA,8mm,for semi-prof filming,must be in exc wkng cond, Walter, 225-4593

'Hot Site' transitions to IN-DEC Customer Services

The Regional Contingency program (RCP), Digital's internal testing and critical applications hot site, has officially transitioned from EMAS Information Services to IN-DEC Customer Services.

According to Art Wessels, hot site manager, "The RCP is primarily used for testing internal contingency plans developed by IS organizations throughout the company. The facility also provides hot site back-up support for Digital's own critical business applications, like Corporate Payroll and the company books."

Digital's Internal Audit Group requires that organizations have a functional contingency plan on file in case of a disaster in order to resume business operations more quickly. More importantly, through the Regional Contingency Program contingency plans can be tested for their effectiveness and revised before a disaster strikes.

As part of the transition to IN-DEC Customer Services, the Parker Street hot site has been renamed the Digital Contingency Program (DCP). Currently, the DCP hot site has 27 subscriber members, with the capacity to handle at least twice that many. Users who do not require actual hot site support can test their contingency plans at the site.

Art Wessels (left), manager of the IN-DEC Area Customer Services "hot site" at Parker Street, and Frank Ignachuck, IN-DEC Area design and consulting services manager, review a newly written contingency plan.

The transition of the DCP to IN-DEC is also a strategic one. The move is intended to more accurately align Digital's internal Disaster Recovery Solution with the company's external business model of RESTART and Contingency Planning Services. The DCP is expected to help U.S. Customer Services leverage external sales of Digital's recovery services. These services help expedite recovery and maintain productivity when accidents or natural disasters strike. Digital's diasaster recovery services include: RESTART, Recover- all, Recovery Planning Assistance, Contingency Planning, and Customized Recovery Services.

For more information about the DCP, internal contingency planning services, or data center consulting services, contact Art Wessels at DTN 223-4247.

Personalized Training Plans – a blueprint to build a secretarial career

Do you know which courses to take to gain the skills you need? Are you sure that those courses are really what you're looking for? Do you know your terminal's software capabilities? Did your manager participate in the decision to have you trained?

These and other questions about training needs for office administrative personnel can be answered with a Personalized Training Plan.

The Personalized Training Plan service is offered by Office Applications Training to Digital's office support professionals in the Greater Maynard and Southern New Hampshire area. To date, over 1,000 training plans have been processed.

This free service gives secretaries and their managers the opportunity to work with a training consultant who will develop a customized training plan based on individual and business needs. The process can be initiated by the secretary, the manager, or by both of them together.

After the secretary has set up time to meet with a training consultant, a brief questionnaire that contains all of the pertinent information is completed. Together, the secretary and manager check off questions on use and planned use of hardware and software, employee's job responsibilities, past training history, and skill areas requiring development.

After a 30-minute meeting with a training consultant, the secretary walks away with the Personalized Training Plan document in hand. Back at the office the information is shared with the manager, who will be involved in the final decisions about the training recommendations.

Says Gail Hall, Office Applications training consultant, "With the Personalized Training Plan, the secretary knows which courses to take and in what order to take them. Managers approve all decisions on the training recommendations that are made, but are relieved of the responsibility of trying to determine which courses are available for developing their secretary's skills. A trained consultant steps in and eliminates the guesswork. As a result, training becomes more strategic, unrelated training is avoided, and training dollars are invested more wisely."

For more information, call Gail at DTN 223-3185.

News Briefs

Deadlines for 'Digital This Week'

Deadlines for "Digital This Week" have been established to help employees plan events and publicity around certain editions. Deadlines do not pertain to Marketplace, which is first- come, first-served.

The DTW schedule for January and February has been altered somewhat. The next three issues and deadlines for DTW are:

Jan. 23 issue — Jan. 10 deadline
Feb. 13 issue — Jan. 31 deadline
March 6 issue - Feb. 21 deadline.

IEEE Computer Society to hold joint meeting

All interested employees are invited to attend a joint meeting of the IEEE Computer Society, the IEEE Magnetics Society and the Greater Boston Chapter of the Association for Computing Machinery on Wednesday, Jan. 17, at 6:30 p.m. The meeting will be held at Digital's Cambridge Research Lab, located in Building 700, One Kendall Square. This cluster of buildings is on the north side of Technology Square at the junction of Hampshire Street and Broadway in Cambridge.

Sam Fuller, vice president, Research and Architecture, will speak on "Workstations in the Distributed Computing Environment." For further information contact Shyam Das at DTN 237-3369 (TFH::DAS). For directions, contact Susan Catan, DTN 259-6602 (CRL::CATAN). ●

Software Technical Writing Program now accepting applications

The Software Technical Writing Program (STWP) is a comprehensive, full-time training program designed to prepare qualified Digital employees for entry-level positions as software technical writers.

During the 35 weeks of the program, students learn the basics of technical writing, computer science, and programming. They also learn how to work effectively on a project team.

STWP is now accepting applications for the October 1990 class. The on-line brochure describes the program and the application process. To receive a copy, please contact Joyce Aikey at DTN 232-2534 (SIOUXI::AIKEY). ●

Spring registration underway at BU's Metropolitan College

Registration for the spring semester is currently underway at Boston University Metropolitan College. MET offers a full range of programs at the undergraduate and graduate levels including computer science, computer information systems, management, administration, finance, marketing, and more.

MET classes meet in the evenings with courses offered in Acton, Boston, and Tyngsboro. Classes begin Tuesday, Jan. 16. For a class schedule and registration information, call MET at (617) 353-6000. ●

Sales & Software Training sponsors Dale Carnegie course

Eastern States Region Sales & Software Training, in cooperation with Leadership Training Inc., will offer the Dale Carnegie course in "Effective Speaking and Human Relations." Employees from all organizations are invited to enroll.

The course consists of 14 sessions, each three-and-a-half hours long. Classes will be held at the Holiday Inn in Marlboro on Tuesday evenings from 5:45-9:15 p.m. beginning Feb. 20.

An orientation/informational meeting will be held at the Holiday Inn on Feb. 13 from 5:45-7:15 p.m. For registration information or answers to your questions, contact Karen McAlpine at DTN 258-4216 (Karen McAlpine @UFO or NEMAIL::MCALPINE). ●

PKO blood drive set for Jan. 18

Parker Street will hold a blood drive on Thursday, Jan. 18, from 9:30 a.m.-2:30 p.m. in the Maynard Conference Room, PKO3-1. You can sign up in the PKO3 cafeteria beginning Monday, Jan. 8. You can also register on the day of the drive in the Maynard Conference Room. ●

Lesley College information session at Dascomb Road

Two information sessions about Lesley College's Programs in Management for Business and Industry (PMBI) will be held in the Dascomb Road facility on Jan. 18 in the Rhine Classroom from 11 a.m.-noon and from 1-2 p.m.

A representative from Lesley College will discuss undergraduate degree programs in the 11 a.m. session and the master's degree programs in the 1 p.m. session. These degree programs will be offered in the spring.

For more information contact Gerry Morenski, DTN 275- 3243, or send mail to KINKON::MORENSKI. ●

Winners of DIS Achievement Awards announced

The DIS Achievement Awards Committee has announced the winners of the fall 1989 Achievement Awards. Sponsored by the Information Management and Technology Management Committee (IM&TMC), this program recognizes those individuals and organizations in the Information Technology community who make outstanding contributions to the corporation by displaying leadership and pioneering new ways of delivering excellent business solutions.

The following projects were chosen to receive this fall's awards:

The VAX Scheduling Systems (VSS) — "Winner with Distinction"

A joint project of Applied Intelligent Systems Group and the Strategic Technologies Group, VSS is a distributed scheduling application that automates the execution of repetitive production jobs on VAX/VMS systems. VSS was chosen for the "Winner with Distinction" award because it exemplifies and actualizes the key strategies for Digital and DIS: it fulfills Digital's technical architecture and distributed computing requirements; it is an enterprisewide, integrated solution to the challenge of improving productivity in the data center; and it is a collaborative effort among several groups.

Other winning projects are:

Data Center Monitor, submitted by European Headquarters I.S.; **Corporate Supplier Master System (CSMS),** submitted by Corporate Purchasing I.S.; **The Field/Manufacturing Applications Portfolio (F/MAP),** submitted by Field/Manufacturing Information Center; **VAXcluster Console System Monitoring Application (VCSMA),** submitted by the United Kingdom I.S. Strategic Planning Group; **Software License Configuration System (SLCS),** submitted by Software Services/DIS.

More detailed information on these winning projects and the DIS Achievement Awards Program is available on the DISHRM VTX infobase (keyname "IDECUS") ●

15,000th VAXcluster system shipped

15,000th VAXcluster system has been shipped to Kellogg Co. of Battle Creek, Mich. The 'grrreat' milestone was announced at the annual meeting of DECUS, the Digital Equipment Computer Users Society. Shown here are Bob Gloriso (left), vice president, High Performance Systems, and Donald Brett, vice president, Corporate Information Technology, Kellogg.

New sales, administrative positions added to 'Career Opportunity Days II'

(See story on page 1 for more details on "Career Opportunity Days II.")

Two newly created positions, Sales Development Specialist and Administrative Account Representative, have been added to the positions available as part of "Career Opportunity Days II."

Sales Development Specialists will perform work that is a necessary part of the selling cycle but requires time away from direct selling. Since much of this work is now performed by sales reps, the Sales Development Specialist will enable the reps to spend more of their time more effectively with customers.

Sales Development Specialists will be part of a sales unit and will report directly to a sales unit manager. Most Sales Development Specialists will have an interest in pursuing a career in Sales. They will be qualifiable for Sales careers and will be supported with on-the-job and classroom training.

The Administrative Account Rep is a new position being implemented within U.S. Administration as part of its strategy to align administrative work by account. Admin Account Reps will act as team leader and single point of contact for the account and the Digital account team for all administrative organizations.●

Sam Fuller elected IEEE Fellow. . .

(continued from page 1)

architecture, software technologies and workstations.

Sam joined Digital in 1978 as Engineering manager for the VAX System Architecture group. After holding a variety of engineering positions, he was appointed group manager, Corporate Research and Architecture, in 1981.

Prior to joining Digital, Sam was an associate professor of computer science and electrical engineering at Carnegie-Mellon University in Pittsburgh. While at CMU he was involved in the performance evaluation and design of several experimental multiprocessor computer systems. One widely referenced example of this work is Cm* Architecture, which culminated in an operational 50-microprocessor system, a forerunner of today's commercial multiprocessors.

Sam holds a bachelor's degree from the University of Michigan, as well as master's and doctoral degrees from Stanford University. He has published extensively in technical journals in the fields of computer architecture and performance evaluation.●

Digital to institute drug, alcohol testing program for certain jobs in the U.S.

Drug and alcohol abuse has been elevated to a major public problem in the U.S. today. As a result, there is a growing expectation that large companies with employees in the U.S. should lead in the overall effort to deal with this problem.

Digital has been wrestling with this issue for many months, working to develop policies and practices that remain consistent with the company's basic values, while meeting new and complex legal, customer and business requirements. At the same time, Digital believes employees should be responsible for their own behavior and expects employees to conduct themselves in a safe and healthy way.

Abuse of drugs or alcohol can show up at the workplace in the form of performance problems such as absenteeism, tardiness and inability to do quality work. It can lead to waste or safety hazards in a manufacturing environment, or poor decision making or engineering errors. It can affect customer relations because of behavior that endangers customers' workplaces and profitability. Consequently, Digital does not condone abuse of drugs or alcohol either inside or outside of the workplace.

Digital has strong substance abuse and employee conduct policies to deal with problems that show up in performance on the job. For instance, the use, possession or distribution of illegal substances on Digital property, or on a customer site, could be cause for termination from the company.

Since alcohol and chemical dependencies are treatable diseases, Digital, through its Employee Assistance Program (EAP), makes various resources available to employees who may have a drug or alcohol problem. Employees who have a problem are strongly encouraged to take advantage of the opportunity to seek treatment, and are able to do so in confidentiality. For those who seek treatment, the chances of recovery are great, but it is up to the employee to take the first step toward treatment.

The U.S. government and customers have been putting increasing emphasis on testing as the most visible means for combating drug abuse. In response to an ever-increasing number of requirements and obligations from government agencies and customers, Digital's Executive Committee has decided to test employees in affected jobs to determine whether they have used illegal or controlled substances, or are under the influence of alcohol.

At first, this program will affect certain truck drivers in the U.S. (in accordance with regulations from the U.S. Department of Transportation), some employees in the Government Systems Group in jobs requiring security clearances, and those who provide service to a few customers that are particularly sensitive about this issue because of health, safety or security considerations. But everyone should bear in mind that, in the current climate of public opinion regarding drugs and drug testing, the number of people affected will probably expand in response to further government regulations, customer requirements and other business needs.

Digital is setting up a program which has five goals:

- to educate employees about the effects of drug and alcohol abuse;
- to make sure the testing is done consistently, fairly and accurately;
- to make sure people are treated with respect;
- to make sure employees know that treatment and other assistance is available to those who seek it; and
- to make sure information about test results are distributed only to those with a clear need to know.

The people affected will be notified in advance. Each will be given detailed information and opportunities to ask whatever questions they may have in order to help them understand their responsibilities under the program, if they should become subject to it. Digital is aware of the complex legal restrictions and employee relations issues surrounding testing, and will be instituting quality training for affected managers. ●

Round-up of local activities for Martin Luther King Day

Facilities throughout the Greater Maynard Area will observe the anniversary of the birth of Dr. Martin Luther King, Jr. this month with a variety of activities.

"This year, Dr. King's birthday is especially important to us," says Alan Zimmerle, Corporate manager, EEO/AA/Valuing Differences. "On Jan. 15, 1990, we will begin a year of reaffirming and refocusing on the principles of valuing differences and affirmative action at Digital. We are doing this because diversity is more important to us as a company than ever before. Given the increased global nature of our business, the changes we are going through as a company, and the diverse makeup of our present and future workforce, it is important to take time to stop and reflect on what have we done in this area that we are most proud of, and where we choose to go from here."

Following is a round-up of activities to mark Dr. King's birthday. These will all be held on Monday, Jan. 15, and everyone is welcome to attend. ●

7:30-9:00 a.m., Sheridan-Hinchcliffe Conference Room, MLO5-4

Fifth annual breakfast in honor of Dr. King. Sponsored by the Mill Valuing Differences groups. For further information, contact Arlene Gibson, DTN 223-4212; Clair Lombard, DTN 223-5150; Ann Marshall, DTN 223-7537.

7:45-9 a.m., VRO3 cafeteria

Breakfast in honor of Dr. King.

7:30-8:30 a.m., MRO1 cafeteria

Film, "I Have a Dream."

11:30 a.m.-12:30 p.m., MRO4 Amphitheater

"I Have a Dream," followed by guest speakers and panel discussion on the theme, "Bringing the Dream into the 21st Century."

Both of these events are sponsored by the Greater Marlboro Area Valuing Differences Committee. For further information, contact Julia Michaelson, DTN 297-7261. ●

DME course offering

"Organizational Performance Improvement (OPI)," EY-6608E-SO, is a four-day residential program from Digital Management Education designed for middle managers.

The course will be held Jan. 16-19 and March 27-30. Please contact the registrars at DTN 249-1880, -1881, -1882 or at (617) 276-plus the four-digit extension. ●

Thanks to you, the holiday season was merry and bright

Thanks to the generosity of local employees, the holiday season was a little brighter for some of the area's needy.

The annual Toys for Tots drive garnered over 1,000 new toys for needy children. The combined efforts of Digital employees and the U.S. Marine Corps Reserve brought smiles to the faces of both givers and recipients.

Westford employees "adopted" five needy families with the assistance of the Mass. Department of Social Services in Lowell. The gifts each family received made the holidays truly memorable.

Out of some 47,000 turkeys distributed to employees, more than 1,800 were donated by employees to various charitable organizations in eastern Massachusetts and southern New Hampshire.

Groups such as Beacon Santa in Acton, the Boston Indian Council, Iglesia Luterana San Juan in Worcester, the Women's Resource Center in Lawrence, Freedom House in Dorchester, the Fitchburg Rotary and the Jewish War Veterans in Randolph received the 12- to 14-pound hen turkeys that Digital traditionally distributes to employees each holiday season.

In New Hampshire, churches in Mason, Nashua, Salem and Amherst, as well as the Soup Kitchen of Manchester, received turkeys. Some agencies served the turkeys for Christmas dinner. Other turkeys were distributed in food baskets.

Erline Belton, manager, Corporate Employee Relations, comments, "Perhaps time was the gift most cherished this season. It takes time to practice and perform with the DECarolers; time to volunteer in a soup kitchen or in a shelter for the homeless; time to buy a gift for the Toys for Tots drive or for a family who's down on its luck. My wish for the New Year is for everyone to have all the time they need to do all the things they want for themselves and for others." ●

Digital's new Assistive Technology Group presented a gingerbread house to Boston's Children's Hospital during the holiday season. Accepting the gift from group manager Ed Lazar (second from right) is Dr. Howard Shane, director of the Communication Enhancement Clinic at Children's. Also on hand for the gift-giving were (from left) Tony Vitale, linguist, Assistive Technology Group; Jane Hamel, Corporate Contributions; and Riaz Adamjee (far right), Children's Hospital engineer.

Dr. Shane's clinic specializes in providing assistive devices to people who have vocal impairments. Digital has worked closely with Dr. Shane over the past year to incorporate DECtalk technology into the devices the clinic offers.

Santa's helper, Barb Wetherell, is distracted from her duties — handing out candy canes and good cheer in the PKO1 lobby.

The Marlboro DECarolers entertained at a lunchtime concert in the MRO1 cafeteria. Part of the concert was interpreted for hearing-impaired employees.

PHONE MEMO

TO Ann
FROM Ted Owen
OF Hudson
DATE 3/11
TIME 10:15 AM PM
AREA CODE
NO.
EXT. 225-5391

MESSAGE

SIGNED

PHONED ☐ CALL BACK ☐ RETURNED CALL ☐ WANTS TO SEE YOU ☐ WILL CALL AGAIN ☐ WAS IN ☐ URGENT ☐

to J.C.

-MAR-1991 11:03:48.01

cling project

-FEB-1991 14:10:39.67

TED OWEN

(we hope) DTW

I got all the information right here. The guy in charge is Dick Jubinville (SCOMAN::), DTN 225-4587. The trays they recycle usually cost $1.50 each, on average. They started last summer and so far have recycled about 100,000 trays and are working on their second hundred thousand. They are returning the money to the corporation -- so far, about $800,000. Also, they're doing something with recycling the gold on the chips -- I can't really read my notes -- anyway, that's\ turning into a "gold mine," too, you should excuse the expression.

The Hudson people have no problem being included in the column, I already checked that angle.

Meantime, I'll send the edited CXO story to you and Larry under separate cover; I have some questions about it.

Kate

(1) IF THEY DON'T MIND BEING FEATURED

(2) EXPLAIN RECYCLE

(3) ~~Send to J.C., T.B.,~~

hud.txt

send to J.C.

From: ICS::NELSONK "08-Mar-1991 1104" 8-MAR-1991 11:03:48.01
To: ASABET::FULLERTON
CC:
Subj: As requested/detail on Hudson recycling project

From: ICS::NELSONK "15-Feb-1991 1405" 15-FEB-1991 14:10:39.67
To: ASABET::FULLERTON
CC: NELSONK
Subj: RE: Waste management column in 3/5 (we hope) DTW

TED OUEN

I got all the information right here. The guy in charge is Dick Jubinville (SCOMAN::), DTN 225-4587. The trays they recycle usually cost $1.50 each, on average. They started last summer and so far have recycled about 100,000 trays and are working on their second hundred thousand. They are returning the money to the corporation -- so far, about $800,000. Also, they're doing something with recycling the gold on the chips -- I can't really read my notes -- anyway, that's\ turning into a "gold mine," too, you should excuse the expression.

The Hudson people have no problem being included in the column, I already checked that angle.

Meantime, I'll send the edited CXO story to you and Larry under separate cover; I have some questions about it.

Kate

(1) IF THEY DON'T MIND BEING FEATURED

(2) EXPLAIN RECYCLE

(3) ~~Send to J.C., T.B.,~~

hud.txt

#2 6-MAR-1991 14:36:34.37 NE
AIL
From: ICS::NELSONK "06-Mar-1991 1434"

RESEARCH

To: ASABET::FULLERTON

CC: NELSONK

Subj: Hudson recycling project/corporate waste management

Ann, did you ever get with the folks in Hudson on their recycling project? This is the group that was saving DEC megabucks by reusing the plastic containers that chips, etc., are shipped in. Plus they were doing something with recycling the gold wire on bad chips...?? Anyway, before I start writing up this story I wanted to check and see if you had touched base with them...you were thinking about helping them to fold into the Corporate Waste Management Program and perhaps featuring them in the next quarterly waste mgmt article.

TNX,

Kate

MAIL>

NAME OF PERSON?

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 002676
Date: 26-Apr-1991 12:16pm EDT
From: JSMITH
JSMITH@ROYALT@MRGATE@REGINA@DS
Dept:
Tel No:

TO: JOE COLLENTRO@MSO
TO: DAVIED WEIL:@MSO

Subject: FYI - Site "recycle" day

VMSmail To information: MTS$::"MSO::DAVIED WEIL:",MTS$::"MSO::JOE COLLENTRO"
VMSmail CC information: JSMITH
Sender's personal name: Janet M. Smith * 235-8126 * DSG2-2/E2

From: ROYALT::MCCORMACK "25-Apr-1991 1504" 25-APR-1991 15:46:44.09
To: @SITE.DIST;3
CC:
Subj:

+---+---+---+---+---+---+---+
| d | i | g | i | t | a | l | I N T E R O F F I C E M E M O R A N D U M
+---+---+---+---+---+---+---+

TO: DISTRIBUTION

DATE: 25 APRIL 1991
FROM: GREG EDWARDS
DEPT: FACILITIES
LOC/MS: DSG2-1/G8
EMAIL: ROYALT::EDWARDSG
DTN: 235-8669

SUBJECT: RECYCLE YOUR UNUSED STATIONERY SUPPLIES

RECYCLE STATIONERY SUPPLIES

SPRING CLEAN-UP DAY

WEDNESDAY, MAY 1, 1991

Littleton Area Property Management will sponsor a Spring Clean-Up Day on Wednesday, May 1 to encourage the recycling of unused or reusable stationery supplies.

In an effort to curtail Digital's expenses and help increase profitability, we are asking all tenants to go through their file cabinets, desks or storage units and determine if there are any unused, unwanted or reusable stationery supplies which could be recycled.

We will redistribute these items throughout the building and put

them to good use. For every item we can recycle, there will be one less item purchased from our vendors.

Your unused or reusable items may be returned to your office supplies area or deposited in the containers we will place on each floor of the buildings. If you need help with the transport of large quantities of items please call us at x 8670

Please note these materials must be in good usable condition. Examples of such items are:

- 3-ring binders
- Staplers
- Staples
- Pens/pencils
- Post-it pads
- Tape
- Scissors
- Paper clips
- Printer ribbons
- Manila folders
- Slash folders
- Visi markers
- Pendaflex folders
- Tape dispensers
- Interoffice envelopes
- Transparencies
- Push pins
- Staple removers

These are just a few of the items which are reusable. There are, of course, others which could be included. In this small way, we feel we can save Digital thousands of dollars. Please support this program by your participation.

You my find the containers in the following areas:

DSG1-1	In front of Mail Room
" 1-2	Just to the right of Cafeteria's door
" 2-1	Back Lobby hallway
" 2-2	Front lobby at top of landing

Regards,

Greg Edwards
Facilities

PHONE MEMO

TO Jim

DATE 12/26 TIME 9:01 AM PM

FROM Fred Gunster

AREA CODE

NO.

OF

MESSAGE

Okay turn has name -
Now about putting something
in about Hamed -
~~Has~~ Fred been Corp. Energy Mgr
since 1986 -
BxC 1-2/B11
FSLNDS :: bucktick

SIGNED

PHONED ☐ CALL BACK ☐ RETURNED CALL ☐ WANTS TO SEE YOU ☐ WILL CALL AGAIN ☐ WAS IN ☐ URGENT ☐

From: ICS::NELSONK "27-Dec-1990 1309" 27-DEC-1990 13:11:41.11
To: HYSTER::SINE,ASABET::FULLERTON
CC: NELSONK
Subj: Energy management article

Is it OK to publish the $$$ figures in the second paragraph of the energy management article -- the material that says "DEC spends $X million a year on energy, about 1% of ...". The legal beagle who reviews DTW is asking me -- isn't he supposed to have those answers? Please check with your source and make sure this is not privileged info.

Second question -- is the thermal storage process described in the 4th paragraph proprietary to DEC? I don't think it is, but would you check with Fred Guertin?

TNX,

Kate

public

no

does not share energy expertise

From: ICS::NELSONK "17-Dec-1990 1700" 17-DEC-1990 16:59:42.65
To: ASABET::FULLERTON,HYSTER::SINE
CC: NELSONK
Subj: Energy mgmt story, Version 2.1

Ann, as requested. I've replaced Harold's name with Fred's in all cases. Let me know whatcha think.

Kate

Energy Management at Digital

[The first of a two-part series on energy and waste management.]

As Persian Gulf tensions tighten, winter fuel prices jump, and everyone wonders when the price of oil will hit the ceiling, saving energy is once again a hot topic. As was the case in energy crises of the past, the economy is suffering too, so it makes even more sense to economize on fuel.

The worldwide energy bill for Digital for an entire year is about $150 million, about 1% of the corporation's total operating revenue. The figure includes all power costs for lights, equipment, heat and air conditioning. The lion's share is for the U.S. -- $100 million. The remaining $50 million covers energy expenses for Europe and GIA.

[Title] Fred Guertin has been watching the thermostats and turning out the lights at Digital since 19XX. He's always looking to incorporate new technology and new ideas into Digital's energy management plans. One of the most intriguing developments is thermal storage.

According to Fred, thermal storage is "basically a giant ice maker in a big concrete pit." It's currently making a big chill at the Shrewsbury facility. At night, when utility rates are much cheaper, it makes and stores giant sheets of ice that melt into chilled water. During the day the chilled water is circulated through pipes and provides air conditioning. Another thermal storage unit is scheduled to go on line

soon at MSO in Maynard.

Cutting expenses for air conditioning can be a big bonus, considering the expense of keeping computer rooms cool and efficient. But in the winter, all the equipment in a typical Digital building can become an energy benefit. In most facilities, heat is provided by "equipment, lights and warm bodies," notes Fred. Typically "only 10% of all the heat generated comes from a furnace or boiler." Many of those furnaces are designed to burn either oil or natural gas, so that Digital can always purchase the cheaper fuel.

Other evidence of energy management is everywhere. There are motion sensitive lights for conference rooms, restrooms, and even some offices. Incandescent lights are out, fluorescent lights are in. Most facilities have double pane insulated windows. Many parking lots are equipped with low-cost metal halide lights.

Solar and wind power are still "too expensive to be considered," says Fred. But in the near future he'd like to implement some other new technologies and innovations.

High on his wish list of energy improvements are "high quality indirect lighting and variable speed motor drives for air conditioning, fans, and pumps." He'd like to "make better use of the heat that's generated in our computer rooms in winter" -- and in the summer "figure out a better way of getting rid of that heat. In some facilities in Europe they can just open the windows, but here all our windows are sealed."

But new energy-saving devices can only do so much. It's people, their habits and behavior, who make the difference.

For example, lights should be turned off when rooms are empty. Turn off your computer terminal when you're finished working for the day. If you're the forgetful type, a special message will soon come up on your screen reminding you to

do just that.

Looking for other energy-saving ideas? Fred and the Energy/Waste Management Committee have compiled a thorough 'cookbook' for saving energy. Ideal for facilities and group managers, it covers high efficiency lighting, motors and equipment, and common sense energy practices for all employees. You can obtain a copy by contacting Fred Guertin @mailstop or nodename::Guertin.

Kent comments 11/29

From: HYSTER::SINE "STEVE SINE @ DTN 264-3140" 28-NOV-1990 15:11:53.41
To: ASABET::FULLERTON
CC:
Subj: VERSION 2 ENERGY STORY...YOUR COMMENTS PLEASE AND DO YOU HAVE ANY PREFERENCE WHEN IT IS PUBLISHED? MANY THANKS

From: ICS::NELSONK "28-Nov-1990 0905" 28-NOV-1990 14:52:58.98
To: HYSTER::SINE
CC: NELSONK
Subj: Re-sending this and hoping for the best

My second pass. Please DISREGARD the first one, and my apologies for any confusion. When were people expecting to see this in DTW?

Energy Management at Digital

[The first of a two-part series on energy and waste management.]

As Persian Gulf tensions tighten, winter fuel prices jump, and everyone wonders when the price of oil will hit the ceiling, saving energy is once again a hot topic. As was the case in energy crises of the past, the economy is suffering too, so it makes even more sense to economize on fuel.

The worldwide energy bill for Digital for an entire year is about $150 million, about 1% of the corporation's total operating revenue. The figure includes all power costs for lights, equipment, heat and air conditioning. The lion's share is for the U.S. -- $100 million. The remaining $50 million covers energy expenses for Europe and GIA.

Ann Fullerton, Corporate Public Relations Director for Energy and Waste Management, says, "There's a renewed interest in saving energy now because Digital is looking at better ways to save all kinds of resources. It's just good business practice."

Corporate Energy Group Manager Harold Trenouth has been watching the thermostats and turning out the lights at Digital since 1982. He's always looking to incorporate new technology and new ideas into Digital's energy management plans. One of the most intriguing developments is thermal storage.

According to Harold, thermal storage is "basically a giant ice maker in a big concrete pit." It's currently making a big chill at the Shrewsbury facility. At night, when utility rates are cheaper, it makes and stores giant slabs of ice that melt into chilled water. During the day, that water is circulated through pipes and turned into air conditioning. Another thermal storage unit is scheduled to go on line soon at MSO in Maynard.

Cutting expenses for air conditioning can be a big bonus, considering the expense of keeping computer rooms cool and efficient. But in the winter, all the equipment in a typical Digital building can become an energy benefit.

In most facilities, heat is provided by "equipment, lights and warm bodies," notes Harold. Typically "only 10% of all the heat generated comes from a furnace or boiler." Many of those furnaces are designed to burn either oil or natural gas, so that Digital can always purchase the cheaper fuel.

Other evidence of energy management is everywhere. There are motion sensitive lights for conference rooms, restrooms, and even some offices. Incandescent lights are out, fluorescent lights are in. Most facilities have double pane insulated windows. Many parking lots are equipped with low-cost metal halide lights.

Solar and wind power are still "too expensive to be considered," says Harold. But in the near future he'd like to implement some other new technologies and innovations.

High on his wish list of energy improvements are "high quality area lighting, variable speed motor drives for air conditioning, fans, and pumps." He'd like to "make better use of the heat that's generated in our computer rooms in winter" -- and in the summer "figure out a better way of getting rid of that heat. In some facilities in Europe

they can just open the windows,
but here all our windows are sealed."

But new energy-saving devices can only do so much. It's people, their habits and behavior, who make the difference.

For example, lights should be turned off when rooms are empty. Turn off your computer terminal when you're finished working for the day. If you're the forgetful type, a special message will soon come up on your screen reminding you to do just that.

Looking for other energy-saving ideas? Harold and the Energy/Waste Management Committee have compiled a thorough 'cookbook' for saving energy. Ideal for facilities and group managers, it covers high efficiency lighting, motors and equipment, and common sense energy practices for all employees. You can obtain a copy by contacting Harold Trenouth @BXO or ISLNDS::TRENOUTH.

DIGITAL'S PROPERTY DISPOSAL CENTERS
by

[redacted]

Digital's two Property Disposal Centers (PDCs) are turning disposal problems into profit opportuniti

The company generates about 20 million pounds of this material a year. We have metrics, just like any Digital business unit. We measure all the processes and transactions so we know how to maximize the revenue dollars from sales, and how to make the most of commodity reclamation.

About 18 months ago, Digital formalized its Waste Management Program. The Pprogram seeks to reduce worldwide generation of waste at the source. A variety of programs have come out of this effort. The Contoocook, NH, PDC consolidates four northeast locations - two leased and two DEC-owned into one DEC-owned and operated facility.

The PDCs are part of U.S. Manufacturing, under Vice President Lou Gaviglia. We operate a reverse manufacturing facility, with the same kind of logic and work flow that any well-designed manufacturing operation has.

Our mission is to process and dispose of excess and obsolete equipment in an environmentally-sound manner, while protecting Digital's proprietary information. We intend to make a profit, and later we hope to sell our services to companies outside. All this builds Digital's environmental image. Better yet, it doesn't cost and eventually it will pay. We are projecting a $3.8 million cost saving in FY/91.

Traditionally, Digital has safely and effectively disposed of waste materials generated by operations, meeting or exceeding environmental regulations, without risking security. In the past, this work was done mainly by vendors and contract people. Now we use only our own employees, who are making important new contributions in terms of lower costs, tighter security, minimized long-term liabilities, and more money back from reclamation. We see the PDC as a tool to manage excess and obsolete equipment to the benefit of Digital, our customers, our communities, and our environment.

PDCs dot process hazardous waste (that's done locally at each site). We don't process waste from facilities such as scrap lamps, wiring conduits, studs and so on. And we definitely do want scrap furniture. It doesn't make sense to ship these items across the country when they can be readily disposed of locally.

Because the PDC is a reverse manufacturer, we've had to learn to play the commodity markets to pick the best times to sell these metal and other items. This '3-Rs' process (recycle, reclaim, resell) means savings, eliminating of toxic waste disposal problems, and giving constructive feedback up-line to Engineering. This feedback could help tomorrow's products contain less or even none of the toxic material you'll find in yesterday's products, by eliminating mercury switches, reducing the lead shielding in cathode ray tubes (CRTs), and so on.

The PDCs grew from a Proposal and an Implementation Plan developed by two cross-functional teams, with a great deal of input from affected groups and functions. We had a good model in the work of the Phoenix Asset Recovery Group, which Paul Kapelke has managed for 10 years as a profitable operation. We studied Phoenix and used many of their ideas and experiences in our Proposal and Plan. Today, we're building ever more synergy between the two PDCs.

Employee involvement and teams are at the heart of this enterprise. Teams wrote the Proposal and Plan, and successor teams continue today in important coordination roles. We involved the people who would be doing the disassembly work to design their own work flow. And, in the spirit of continuous improvement, they continue to be involved in improving the processes.

Today, our biggest learning issue is figuring out how to fine-tune the scheduling of truck deliveries so the PDC people know ahead of time what items are coming. That way, they can adapt the disassembly process to the items before they arrive. Meanwhile, we are applying the principles of continuous improvement to refine our metrics and operations.

We are asking hard questions: Is it worth it to crunch certain items, or do we just bail them and sell them? Should we bother separating cables to recover the copper? And what about any new commodity markets we may or may not know about yet?

The PDC Program was designed to be a model for GIA and Europe, and

because we developed a transferrable process, the model is now ready for adoption and use.

People outside Digital are also becoming aware of our PDCs. We're collaborating with some of Digital's largest accounts, such as AT&T, DuPont, and GE, sharing waste minimization information. A future goal of the PDC Organization is to expand its services to external customers.

sell PROMs and D-RAMs to electronic toy makers or to crush modules to reclaim gold and silver. At the same time, we must be environmentally responsible, dealing carefully with hazardous substances, and we must also protect Digital's proprietary information.

The PDC in Phoenix, which has been in operation for 10 years, handles Digital's equipment disposal from west of the Mississippi. The PDC in Contoocook, NH, which opened in July 1990, handles equipment from east of the Mississippi.

When customers and internal users turn in their old equipment, the Returned Materials Group ships it to one of these two PDCs. Most of this equipment contains valuable metals and other materials, and reclamation can be very lucrative. For instance, it is possible to

I N T E R O F F I C E M E M O R A N D U M

Date: 08-Nov-1990 02:01pm EST
From: MIKE ODOM
ODOM.MIKE AT A1 at ICS at PKO
Dept: EEO/AA VALUING DIFFERENCES
Tel No:

TO: CARMINE RICCIOLI @WJO

CC: ANN HOWE (HOWE.ANN AT A1 at ICS at PKO)
CC: RICHARD SELTZER (SELTZER.RICHARD AT A1 at ICS at PKO)
CC: ANN FULLERTON @MLO

Subject: Re-send of Attached

Dear Carmine:

The attached article, based on my recent interview with you, is intended for the next issue of MGMT MEMO. Please check it for accuracy and get back to us as soon as possible with your corrections and/or approval.

Are you the right person to be cited in the 'by-line'? If not, would you please let us know immediately who it should be so we can send a copy to that person and get approval in time.

To meet our deadlines for this issue, we need to hear back from you by Friday, Nov. 16.

Best regards,

Mike

WASTE MANAGEMENT KEY MESSAGES

1. Digital is committed to minimizing waste through source reduction.

2. To this end, Digital instituted a formal Waste Minimization Program early in 1988. The program, under the direction of senior management, seeks to reduce worldwide the generation of waste at the source through cost-effective changes in process technologies and materials usage.

3. Central to this program is its integration throughout the overall organization. Effective waste minimization can be achieved only if it is fully integrated into all employees work environment.

MGT. MEMO

– Part of WASTE MGT. PROGRAM

DIGITAL'S PROPERTY DISPOSAL CENTERS
by

Digital's two Property Disposal Centers (PDCs) are turning disposal problems into profit opportunities.

PDCs take obsolete and excess equipment apart, and then sell the pieces to the highest bidder. The company generates about 20 million pounds of this material a year. We have metrics, just like any Digital business unit. We measure all the processes and transactions so we know how to maximize the revenue dollars from sales, and how to make the most of commodity reclamation.

The PDCs are part of U.S. Manufacturing, under Lou Gaviglia, vice president. We operate a reverse manufacturing facility, with the same kind of logic and work flow that any well-designed manufacturing operation has.

Our mission is to process and dispose of excess and obsolete equipment in an environmentally-sound manner, while protecting Digital's proprietary information. We intend to make a profit, and later we hope to sell our services to companies outside. All this builds Digital's environmental image. Better yet, it doesn't cost and eventually it will pay. We are projecting a $3.8 million cost saving in FY/91.

Traditionally, Digital has safely and effectively disposed of waste materials generated by operations, meeting or exceeding environmental regulations, without risking security. In the past, this work was done mainly by vendors and contract people. Now we use only our own employees, who are making important new contributions in terms of lower costs, tighter security, minimized long-term liabilities, and more money back from reclamation. We see the PDC as a tool to manage excess and obsolete equipment to the benefit of Digital, our customers, our communities, and our environment.

The PDC in Phoenix, which has been in operation for 10 years, handles Digital's equipment disposal from west of the Mississippi. The PDC in Contoocook, NH, which opened in July 1990, handles equipment from east of the Mississippi.

When customers and internal users turn in their old equipment, the Returned Materials Group ships it to one of these two PDCs. Most of this equipment contains valuable metals and other materials, and reclamation can be very lucrative. For instance, it is possible to sell PROMs and D-RAMs to electronic toy makers or to crush modules to reclaim gold and silver. At the same time, we must be environmentally responsible, dealing carefully with hazardous substances, and we must also protect Digital's proprietary information.

PDCs do not process hazardous waste (that's done locally at each site). We don't process waste from facilities such as scrap lamps, wiring conduits, studs and so on. And we definitely do not want scrap furniture. It doesn't make sense to ship these items across the country when they can be readily disposed of locally.

Because PDC is a reverse manufacturer, we've had to learn to play the commodity markets to pick the best times to sell these metals and other items. This '3-Rs' process (recycle, reclaim, resell) means savings, eliminating of toxic waste disposal problems, and giving constructive feedback up-line to Engineering. This feedback could help tomorrow's products contain less or even none of the toxic material you'll find in yesterday's products, by eliminating mercury switches, reducing the lead shielding in cathode ray tubes (CRTs), and so on.

The PDCs grew from a Proposal and an Implementation Plan developed by two cross-functional teams, with a great deal of input from affected groups and functions. We had a good model in the work of the Phoenix Asset Recovery Group, which Paul Kapelke has managed for 10 years as a profitable operation. We studied Phoenix and used many of their ideas and experiences in our Proposal and Plan. Today, we're building ever more synergy between the two PDCs.

Employee involvement and teams are at the heart of this enterprise. Teams wrote the Proposal and Plan, and successor teams continue today in important coordination roles. We involved the people who would be doing the disassembly work to design their own work flow. And, in the spirit of continuous improvement, they continue to be involved in improving the processes.

Today, our biggest learning issue is figuring out how to fine-tune the scheduling of truck deliveries so the PDC people know ahead of time what items are coming. That way, they can adapt the disassembly process to the items before they arrive. Meanwhile, we are refining our metrics and exploring ways of possibly making equipment shells out of our own recycled plastics.

We are asking hard questions: what level of disassembly should we go to? Is it worth it to crunch certain items, or do we just bail them and sell them? Should we bother separating cables to recover the copper? And what about any new commodity markets we may not know about yet?

People outside Digital are also becoming aware of our PDCs. We're collaborating with some of Digital's largest accounts, such as AT&T, DuPont, and GE, exchanging disposal processes with them. We expect some day to be able to offer our equipment disposal services to larger companies.

* * *

Reduce paper waste in ALL-IN-1

Digital has established a Waste Management Program to establish goals, strategies, and measurements for the responsible management of waste throughout the company. "Waste" means product, facility or process material that has no apparent productive use in its present form.

The extra paper generated by ALL-IN-1 and our operating system is one type of waste that has been investigated.

On the average, each letter contains approximately two pages and at least one blank page is printed between each letter. The ideas presented below will reduce the number of pieces of paper used by computer printers by over 25% and will save Digital about $2 million.

Some ALL-IN-1 protocols are controlled by ALL-IN-1 users, and can substantially decrease the amount of extra paper. These protocols are defined below. A complete description of the instructions required to make these changes can be found in the VAX Notes file OAWEGO::ALL-IN-1, Note No. 561. Refer to ALL-IN-1 Reference Manual, Volume II, Chapter 29 for more information.

- Printer Control Settings - All the settings except the "Notify User" setting can be changed to "N" (the present default is "Y"). This will eliminate one form feed for all types of document formatting.

- Pagination Settings - If the sheet feeder tray reads "REAR," the present default protocol, an extra page is inserted in the document for those printed in the WPS-PLUS format. To save paper, change the protocol to "NOTRAY."

The sender of documents is the primary controller of the form feed; however, both sending and receiving ALL-IN-1 systems must be properly synchronized to eliminate the form feed. System managers can change the default to NOTRAY by installing the "NOTRAY tool," which has been developed by Digital's Corporate Information Systems Group. User instructions on the "NOTRAY tool" are available in the VAX Notes file ATLANA::NOTRAY. Once this tool is installed, ALL-IN-1 users will no longer have an extra page in most circumstances.

Whenever REAR is shown under pagination settings, ALL-IN-1 users can change the command and eliminate the form feed each time a document is printed. It cannot be changed permanently.

Future versions of ALL-IN-1 will change the default print options to "N." The default pagination setting in ALL-IN-1 V2.4 is "NOTRAY."

Systems managers are encouraged to make these next three changes:

- Printers on QUEUE - Default settings for "NOFEED" can be established which eliminate blank pages between documents.

- Networks Using DQS Software - Default settings for "NOBURST, NOFLAG, NOTRAILER" can be established. Eliminates blank pages and burst pages.

- LN03 Printer Table - By changing LN03.PRA settings, the blank page between documents can be eliminated.

For more information on reducing paper waste in ALL-IN-1, contact Kris Chiasson @CFO.

KATE's 251-1307

From: IPEDSN::NIELSEN "LARRY NIELSEN; MLO8-3/D17; DTN 223-3758" 1-NOV-1990 08:40:11.33
To: ASABET::FULLERTON
CC: NIELSEN
Subj: DTW ARTICLE FOCUSED ON DELTA AND PACKAGING

Ann, apparently, Karen Rhine has written an article that talks about the DELTA program using a packaging source reduction project as an example. The project deals with the elimination of extra unloading ramps with systems orders, and is one of the ones on the list I maintain. I believe the main idea of the story is to promote Delta, but I thought you might have some input for Karen for consistencey of any message around waste management.

Larry

From: FRAGIL::ALDEN "DIST/PKG ENG 223-3906" 1-NOV-1990 07:02:54.21
To: DAVIES,MCBRIDE,FEEHAN,BURKE
CC: NIELSEN,ALDEN
Subj: RAMP REDUCTION ARTICLE FOR "DTW" -- PLEASE CRITIQUE (thank you!)

From: LILAC::RHINE "31-Oct-1990 1526" 31-OCT-1990 17:29:33.72
To: BIGPAK::ALDEN,TERPIN::SUSEL
CC:
Subj: Ramps Story for DTW

Hi there. Here it is. Because I'm going away for 3 weeks on Friday, I'd really like it if you could get back to me with any comments by the end of the day Thursday. Not sure what issue this will go in; I suspect it'll be early December.

Thanks for all your help!

Karen

Employee Involvement
Continues to "Ramp Up"

Sometimes an improvement idea is the product of several minds taking note of a problem and turning over solutions. Such was the case with a situation involving the excess distribution of de-skidding ramps, devices that facilitate the safe unloading of Digital cabinet products from their pallets at a delivery site.

One ramp is shipped with every cabinet product that Digital sends out. A shipment that includes a dozen cabinets and, therefore, a dozen ramps, in many cases, has 11 ramps more than is necessary. The excess is generally thrown away.

Although the issue was already being discussed in the Industrial Package Engineering Group (IPE) in

the Mill, the problem gained new focus when an improvement idea was forwarded to the group from DELTA. The suggestion was from Bruce Susel, an engineering technician for Engineering Advanced Systems Development in Marlboro, Massachusetts.

Bruce became aware of the problem when he was in residence at a customer site in Huntsville, Alabama. While there, he saw several containers of ramps thrown away unopened in the process of uncrating.

Bruce's idea, to reduce the quantity of ramps shipped, was forwarded to Polly Alden of IPE. Another employee, Mike Sigismondo, of the Somerville, Massachusetts office, coincidentally sent in a DELTA suggestion regarding this same waste issue just a few weeks after Bruce did.

The ramps, made of hardwood and weighing about 25 pounds in their individual packages, cost about $20 a set (there's always a left one and a right one). Added to this are the costs of purchase administration, inventory, packaging, shipping and disposing of redundant ramps, and the environmental impact.

Some situations involving cabinet distribution require one set of ramps per cabinet, so the problem can't be neatly solved by just sending one ramp set per shipment. To find the best solution, Polly formed a task force last summer, seeking first to eliminate excess in internal orders.

Polly outlines several possible solutions that are now being considered by the 10-member task force. The final destination site could provide the ramps; the carrier could provide reusable ramps; or the destination site could be provided with just one set of ramps for each order.

"At this stage we're still gathering data," says Polly. "We need to find out how many ramps we ship and the actual cost to make, administrate and ship the ramps. Right now we have about 10 different sets that we use. If we could get that number down to two or three sets, at the very least we would lower the amount of part numbers. And that's a cost-saver in itself."

Bruce, who was invited by Polly to join the task force and accepted, says he examines his ideas critically before presenting them. "When I look at an idea, I look at how practical it would be to implement," he says.

Another of his suggestions is to look carefully at the number of hardware manuals and installation guides sent out with each shipment. Many, he believes, are as redundant as the excess ramps. He also questions the packaging of floppy disks. One box of six floppies, he says, was shipped to him with each floppy in an individual package, wrapped six times. These packages, he recalls, came in "a box the size of a coffee table that weighed 10 pounds".

Polly calls the DELTA Program "a good catalyst" and says, "it gave us a public forum for addressing the ramp issue and helped us to get willing participants on the project."

##

#1 6-NOV-1990 09:56:33.95 NE

WMAIL
From: ICS::HOWE

To: ASABET::FULLERTON

CC:

Subj: HEY, ANY TIME

Hey, you can talk to me any time...besides when I get upset, I slam through doors....although I am getting better...have a good day and see you on Nov. 29. And I promise the staff won't spit or throw food at you..unless of course...

ON a PROFESSIONAL level, as an FYI...an MCG writer named Steve Sine has been assigned by me (remember, power isn't given at Digital it is TAKEN!!!!!!!!!..only a joke) to do a series of short articles on the energy stuff that Harold and Fred are working on...I want to use our main MCG writer, Karen Rhine (who is vacationing personally on her own time and money to Australia) for stuff on waste management.

Have a nice day...and remember, when the enemy is in range, so are you.

Press RETURN for more...

MAIL>

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006493

om EDT

at ICS at PKO
n Group

TO: ANN FULLERTON @MLO

Subject: ALL-IN-1 Article

Here is the revised article.
notes files are created, we ca

After thinking about the artic
has on the amount of extra pap
fixes as follows:

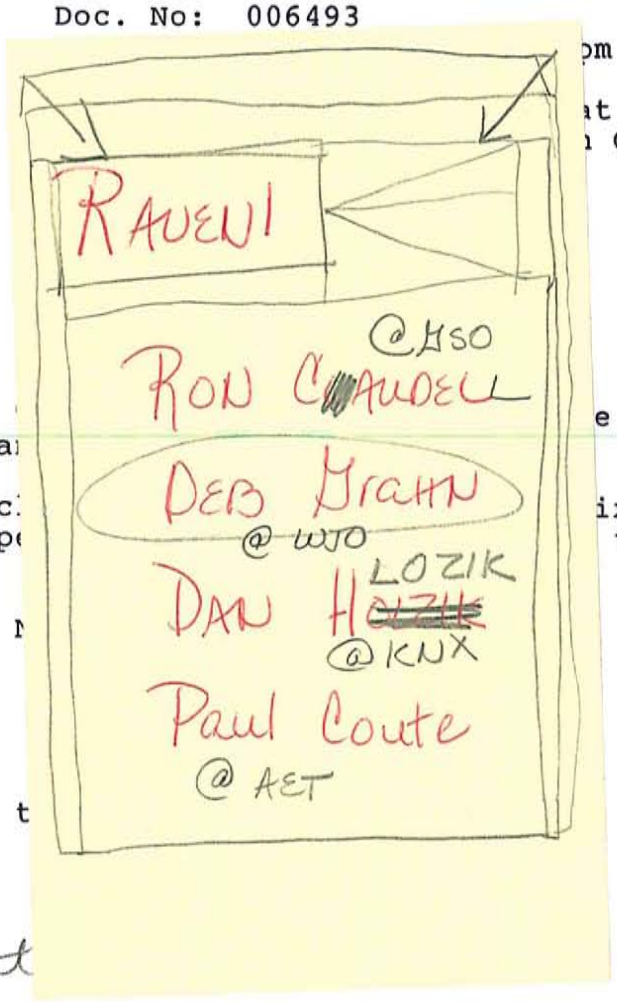
- o Pagination Settings - N
- o LN03.PRA
- o Burst Pages
- o Printes on Queue
- o DQS Software

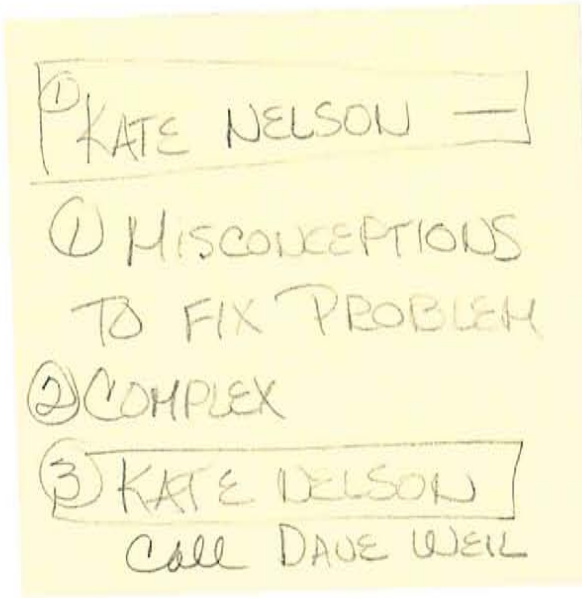
Perhaps the editor would like t

Regards,

Dave

sent





REDUCE PAPER THROUGH ALL-IN-1

Digital has established a Waste Management Program to provide leadership in establishing goals, strategies, and measurements for the responsible management of waste throughout the Company. By "waste" we mean: product, facility or process material that has no apparent productive use in its present form. The extra paper generated by ALL-IN-1 and our operating system is one type of waste that has been investigated.

On the basis that there are approximately 2 pages per letter and that at least one blank page of paper is printed between each letter, the ideas presented below will reduce the number of pieces of paper used by computer printers by over 25%, which has a savings of $2 million. Here then is one opportunity for all employees to get involved in a means to save money for Digital.

Presently, ALL-IN-1, operating systems, and network protocols can generate one or more blank or banner sheets of paper between each document when printed causing a considerable amount of wasted paper for the Company. The implementation of corrective actions require cooperative efforts between users and systems managers.

Some ALL-IN-1 protocols are controllable by ALL-IN-1 users, and can substantially decrease the amount of extra paper. These protocols are defined as follows. A description of the commands required to make these changes are obtainable in the VAX Notes file _____. Refer to ALL-IN-1 Reference Manual, Volume II, Chapter 29 for more information.

- Printer Control Settings - All the settings with the exception of "Notify User" can be changed to "N" (the present default is "Y"). This will eliminate one form feed.

- Pagination Settings - This is the most persistent concern to be corrected. If the Sheet Feeder Tray reads "REAR", the present default protocol, an extra page is inserted in the document. The appropriate setting is "NOTRAY".

  The sender of documents is the primary controller of the form feed; however, both sending and receiving ALL-IN-1 systems must be properly synchronized to eliminate the form feed. The default can be changed to NOTRAY by installing the "NOTRAY tool", which has been developed by Digital's Corporate Information Systems (CIS) Group, and has been communicated to all system managers. In addition, the "NOTRAY tool" is available in the VAX Notes file _____. Employees, as senders of documents are encouraged to urge their system managers to install this fix as quickly as possible. Then, in most circumstances, ALL-IN-1 users will no longer have an extra page.

  Whenever REAR is shown under Pagination Settings, ALL-IN-1

users can change the command and eliminate the form feed each time a document is printed. It cannot be changed permanently.

Future versions of ALL-IN-1 will change the Default Print Options to "N" and the Pagination Settings to "NOTRAY".

The next three changes require specific actions by systems managers who are encouraged to implement them. These actions are being communicated to them by the CIS Group.

- Printers on QUEUE - Default settings for "NOFEED" can be established which eliminate blank pages between documents.

- Networks Using DQS Software - Default settings for "NOBURST, NOFLAG, NOTRAILER" can be established which eliminate blank pages and burst pages.

- LN03 Printer Table - By changing LN03.PRA settings, the blank page between documents can be eliminated.

Successful implementation will have a substantially favorable impact on the amount of paper generated throughout the Company. Should you require further information on this project, contact Kris Chiasson @CFO.

10/15/90

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 006492
Date: 15-Oct-1990 03:30pm EDT
From: DAVID WEIL
WEIL.DAVID AT A1 at ICS at PKO
Dept: Waste Minimization Group
Tel No:

TO: ANN FULLERTON @MLO

Subject: ALL-IN-1 Back-up

Ann,

Here is the back-up that will be put into VAX Notes. You will note the 2 balnk spaces; they will be filled in when we know what they are -- and we will resend it to you.

Thanks.

Dave

ALL-IN-1 PAPER

Presently, ALL-IN-1 application, network, and operating system protocols can generate one or more blank sheets of paper between each document when printed. The idea is to remove the blank sheets of paper between documents when using ALL-IN-1, unless specifically set by the user or the systems manager. In other words, change the default settings or take other actions to eliminate the pages and require users to go into the software and add the blank pages if needed.

Customers have already requested that DEC advise them on how to make this switch. We have advised sales people to show the customers the default mechanisms and indicate that we are working on implementing the ideas included in this document.

There are 6 different ways that blank and banner pages can be inserted into a document when prepared or printed. The methods to change these and eliminate the unnecessary paper is described below.

ALL-IN-1 Protocols

1. Printer Control Settings - all the settings with the exception of "Notify User" can be changed to "N" (the default is "Y"). Version 3.0 will change the defaults to "N".

2. Pagination Settings - Pagination settings for WPSPlus editor can be set to: First Page Printed "1"; Last Page Printed "0"; Sheet Feeder Tray "NOTRAY". If Sheet Feeder Tray reads "REAR", an extra page is inserted into the document.

   The sender is the primary controller of the form feed; however, both sending and receiving systems must be synchronized to eliminate it. The installation of a "NOTRAY Tool" (developed by Corporate Information Systems Group) will change the default setting to "NOTRAY" for current users for newly created documents. Receivers of that document generally will not have an extra form feed. The "NOTRAY Tool" is available in the VAX Notes file _____. Support is also obtained through this notes file.

   However, under certain circumstances, REAR will continue to appear:

   a. Receiving Systems Manager specifies "standard formatting" for ASCII EDT and the document received is in ASCII format: "NOTRAY" will be changed back to "REAR".

   b. Importing of VMS mail document to ALL-IN-1 by using Document Transfer (DT) and Receive from VMS (RV): "REAR" is created.

c. Install new accounts: "REAR" is default setting.

Users can eliminate form feed for each printing by changing Pagination setting from REAR to NOTRAY and saving setting in area "0". The setting, however, is not changed permanently. Refer to ALL-IN-1 Reference Manual, Volume II, Chapter 29 for instructions. Version 2.4 will change the default to "NOTRAY".

SYSTEM Protocols

3. Printers on QUEUE - Default settings for "NOFEED" can be established which eliminate blank pages between documents.

4. Networks using DQS Software - Default settings for "NOBURST, NOFLAG, NOTRAILER" can be established which eliminate blank pages and burst pages.

5. LN03 Printer Table - By changing LN03.PRA settings, the blank page between documents can be eliminated.

Each of the above five is described more fully in Attachment A.

6. Print Command - One opportunity is yet to be resolved, which makes a change to the ALL-IN-1 software. Currently, the "XP" method of multiple printing treats all the selected documents individually, rather than as a group. Hence a banner page is inserted between each document. The suggested change is to treat the multiple documents as one. This change will require approval of Software Engineering and Product Management.

Kris Chiasson, Project Manager
October 15, 1990

Attachment A

1. Printer Control Settings

- At $, select A1
- At Main Menu, select US
- Select PO
- Set Printer Control Settings:

Burst Page	N
Flag Page	N
Form Feed	N
Headers	N
Notify User	Y

2. Pagination Settings

- After P Command, do GOLD A
- At Print Settings Menu, select PG
- At WPS-Plus Pagination Settings, set:

First Page Printed 1 \ To print entire document
Last Page Printed 0 /

Sheet Feeder Tray NOTRAY

- At Print Settings Menu, select SS to save these settings.
- Save settings in area "0"

The "NOTRAY tool" that can be installed by Systems Managers, will automatically change the default to NOTRAY for all users for all newly created documents using the WPS Plus editor. Old documents can be corrected with a special update (runtime is extensive). The tool can be obtained from the VAX Notes file _____. Support is also obtained from this notes file.

Under ASCII EDT, the default will become REAR when the receiving systems manager changes the ASCII EDT formatting:

- At SM or SYS1 menu — SEL ASCII EDT
- "Standard Formatting" Field — Y

Thus the WPSPLUS default (REAR) is established upon receipt of ASCII documents even if NOTRAY is received from the sending system.

The "Y" allows ASCII users to use WPSPLUS formatting to print documents. Most systems will be set at "N".

New accounts are set at REAR, so system manager must change them to NOTRAY. Refer to VAX Notes File _____ for instructions.

NOTE: Some older printers (e.g., LQP) require "REAR" rather than NOTRAY. Consequently, users will have to change settings to REAR when they print.

3. Printers on QUEUE

System Managers can set default as follows for each printer on queue:

```
/DEFAULT=(NOFEED,FORM=DEFAULT)
```

This will eliminate form feed between documents.

4. Networks Using DQS Software

System managers can set DQS Software for those printers operating under DQS network manager.

Access DQS startup file. For each printer, set the following parameter:

```
/SEPARATE=(NOBURST,NOFLAG,NOTRAILER)
```

This will eliminate extra burst page and form feed.

NOTE: For printers on DQS, both QUEUE and DQS parameters must be set.

5. LN03 Printer Table

System Managers can set LN03 escape settings to not execute a form feed prior to or after printing the document, by running Printer Table Utility.

- At $, run PTU
- Select PA (LN03.PRA file)
- Set parameters as follows:

```
Initialization:        <ESC>[!p
Termination:           <ESC>PO;1;Oy<ESC>\<ESC>[!p
```

Q2

ARTICLE IDEAS

1. ENERGY AWARDS
2. CARE CONTRACT
3. MASS SAVE ENERGY A

Q2 ISSUE DATE

Oct 9

Oct 30

Nov. 20

Dec. 11

TARGET ~~Nov.~~ COPY – DEADLINE

Nov. 20 Pub Date

CONTENT: ↗

[1 pg.

→ Paragraph Caulfield

- outline of program
- employee into

DAVE — WE WILL SCHEDULE FOR KICK (200.20) OFF OF WITH QUARTERLY COLUMN IN DTW.

Old

INTEROFFICE MEMORANDUM

Doc. No: 006414
Date: 26-Sep-1990 12:14pm EDT
From: DAVID WEIL
WEIL.DAVID AT A1 at ICS at PKO
Dept: Waste Minimization Group
Tel No:

no good

TO: ANN FULLERTON @MLO

Subject: Waste Management Communication

Attached is an article that I would like to run ASAP in DTW and Digital Today. It was prepared with the assistance of CIS Management.

Here is the suggested process:

1. Editor rewrites into newspaper style.
2. We circulate again to key CIS and Product Management folks for review and approval (?).
3. We present to newspaper editors for publication.

Do you agree?

Can you help?

Thanks.

Dave

REDUCE PAPER THROUGH ALL-IN-1

Digital has established a Waste Management Program to provide leadership in establishing goals, strategies, and measurements for the responsible management of waste throughout the Company. By "waste" we mean: product, facility or process material that has no apparent productive use in its present form. The extra paper generated by ALL-IN-1 and our operating system is one type of waste that has been investigated.

On the basis that there are approximately 2 pages per letter and that at least one blank page of paper is printed between each letter, the ideas presented below will reduce the number of pieces of paper used by computer printers by over 25%, which has a savings of $2 million. Here then is one opportunity for all employees to get involved in a means to save money for Digital.

Presently, ALL-IN-1, operating systems, and network protocols can generate one or more blank or banner sheets of paper between each document when printed causing a considerable amount of wasted paper for the Company. The implementation of corrective actions require cooperative efforts between users and systems managers.

A complete description of the commands required to make these five changes are obtainable in the VAX Notes file ____. In addition, assistance can be obtained from John Wolfe @ALF and Rick Gabrielli @CHM.

Some ALL-IN-1 protocols are controllable by ALL-IN-1 users, and can substantially decrease the amount of wasted paper. These protocols are defined as follows. Refer to ALL-IN-1 Reference Manual, Volume II, Chapter 29 for more information.

- **Printer Control Settings** - All the settings with the exception of "Notify User" can be changed to "N" (the present default is "Y"). This will eliminate one form feed.

- **Pagination Settings** - This is the most persistent concern to be corrected. If the Sheet Feeder Tray reads "REAR", the present default protocol, an extra page is inserted in the document. The appropriate setting is "NOTRAY".

  Both sending and receiving ALL-IN-1 systems must be properly synchronized to eliminate the form feed. The sending system

can be changed to NOTRAY by installing a toolkit, which as been developed by Digital's Corporate Information Systems (CIS) Group, and has been communicated to all system managers. Employees, as senders of documents are encouraged to urge their system managers to install this fix as quickly as possible. Then, ALL-IN-1 users will no longer have an extra page in most circumstances. Whenever REAR is shown under Pagination Settings, ALL-IN-1 users can change the command and eliminate the form feed each time a document is

printed. It cannot be changed permanently.

Future versions of ALL-IN-1 will change the Default Print Options to "N" and the Pagination Settings to "NOTRAY".

The next three changes require specific actions by systems managers who are encouraged to implement them. These actions are being communicated to them by the CIS Group.

- **Printers on QUEUE** - Default settings for "NOFEED" can be established which eliminate blank pages between documents.

- **Networks Using DQS Software** - Default settings for "NOBURST, NOFLAG, NOTRAILER" can be established which eliminate blank pages and burst pages.

- **LN03 Printer Table** - By changing LN03.PRA settings, the blank page between documents can be eliminated.

Successful implementation will have a substantially favorable impact on the amount of paper generated throughout the Company. Should you require further information on this project, contact Kris Chiasson @CFO.

#2 27-AUG-1990 10:25:54.85 NEWMAIL
From: ICS::NELSONK "27-Aug-1990 1017"
To: ASABET::FULLERTON
CC: NELSONK
Subj: Environmental feature

I'm finally reading my mail....I'm going to approach Jim about the Environmental feature, then we'll decide from there if Anne needs to be involved in the decision. One of the things Jim and I are trying to do with DTW is to create regular, quickly identifiable features and departments, so this falls in with our plans pretty neatly. A stat will be PERFECT.

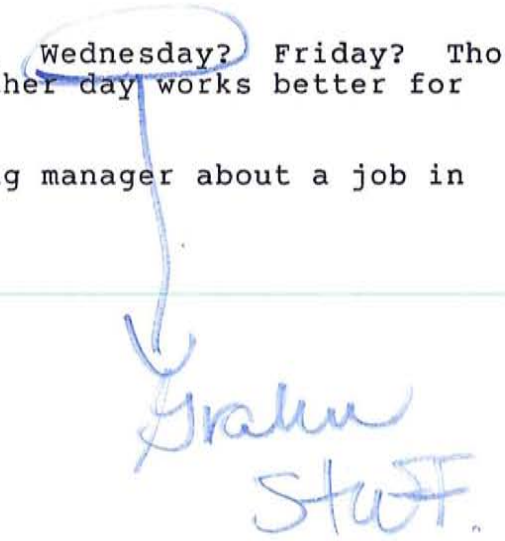
I think we can target Q2 safely.

Leave us have lunch this week, if you can. Wednesday? Friday? Those are the two best days, let me know if another day works better for you.

On a different note...I wrote to the hiring manager about a job in

Press RETURN for more...

MAIL>



I N T E R O F F I C E M E M O R A N D U M

Doc. No: 005934
Date: 27-Aug-1990 11:55am EDT
From: FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (FRED GUERTIN @BXC)

Subject: Energy Awards

Fred,

I spoke with Ellie B. re: energy awards. I need basic info on the awards -- the who, what when, where, how -- then I can get it into DTW and other newsletters. So if you could send me this info -- I can get started on getting it some coverage!

Look forward to getting the info ---

Regards,
Ann

I N T E R O F F I C E M E M O R A N D U M

Date: 24-Aug-1990 03:23pm EDT
From: Deborah Grahn
GRAHN AT NHLA1 at WJOMTS at WJ
O

Dept:
Tel No: DTN 282-1443

TO: HAROLD TRENOUTH @BXC

Subject: DTW Article - your thoughts

Hi Harold, here's what I want to send to DTW for the next issue - what do you think?? I think at some future point a detailed article about all the good things that Energy is doing to conserve resources and reduce costs is a great idea. I would be happy to help if you need me to. I'll plan on having this sent to DTW on Monday afternoon so let me know if you have changes before then - you can reach me by Email or call me at home 473-5429. Have a good weekend. Deb

---

Greetings Kate, here is an article/photo on an Employee awareness program that we are sponsoring and I would appreciate it if you could possible squeeze this into the next/future DTW.

Photo
(on it's way via demand shuttle - monday)

In the photo are Pat Whelan (L) and Karen Smith (R) from MASS-SAVE. Shot was taken in WJO.

USM Waste Minimization in partnership with Corporate Energy are sponsoring an Employee Energy Awareness campaign in cooperation with MASS-SAVE. The campaigns objective is to provide information to Digital Employees on ways to take personal action to conserve energy in the home while helping the environment and saving money all at the same time. Over the next several months the energy awareness exhibit will be traveling to different Digital sites located within the MASS-SAVE greater 495 (Massachusetts) service area. The exhibit is staffed by MASS-SAVE and Digital personnel who will provide information and answer your questions about home energy surveys, conservation products and compact fluorescent lighting.

Reaffirm your commitment to this planet and your purse without "freezing in the dark" by learning more about home conservation. Through no-cost home energy surveys Massachusetts residents can learn how efficient thier homes are and can expect to have up to $30 worth of "free" conservation products installed in their homes at the time of the audit (most apartment dwellers are also eligible).

MASS-SAVE has been contracted by Mass Electric as well as most of the other area utilities to administer their state mandated residential conservation programs, call MASS-SAVE directly to find out about Home Energy Survey Plus 800-632-8300. Or you can contact your local gas or electric utility company to find out who they have contracted to administers their residential conservation program. Boston Edison customers should contact Boston Edison directly for the Easy Home Energy Survey 800-344-2284. Residents outside of Massachusetts are encourage to contact their respective utility company and inquire about home conservation services and energy audits.

(Kate, I've included the schedule for the next two months in case you think it's appropriate to include. If you think we need to reference a contact person feel free to use my name.)

September and October Exhibit Schedule

SHR1	September 13
SHR2	September 14
BXC	September 26
WFR	October 11
SPO	October 12

I N T E R O F F I C E M E M O R A N D U M

Date: 03-Aug-1990 11:46am EDT
From: Deborah Grahn
GRAHN AT NHLA1 at WJOMTS at WJ
O
Dept:
Tel No: dtn 282-1443

TO: WILLIAM BAKER @UPO

Subject: Carr relations

Hi Bill, you had the perfect weather for vacation - I hope you enjoyed it. I stopped over to DSG on Thursday when the CARR gang was there. This event took on a little different flavor than the one in MRO1 - it was a small and more intimate. It was set up presentation style which worked well for the size of the site - it was adhoc but ML & Gerry both did a nice job winging it.

I feel it's a good idea to get together soon and put a communications strategy to the program so we can best maximize the professionalism and commitment of the effort. Do you have a strategy in mind and do you have a schedule of sites which are going to be implementing Envision.

As I mentioned before I'm concerned about getting employees all fired up about recycled products and not supplying them resources to purchase them for the home. This is an area that needs to be addressed and I feel it should be before the next exhibit!

I know you mentioned you wanted to do an article for the DTW - I think it's a great idea but perhaps we could get better control over things before this happens. I would be happy to work this with you, as a matter of fact Ann Fullerton from Corp Communications is considering the possiblities of doing a regular Waste Minimization/Earth Vision monthly column for the DTW which would spot lite activities like this - the idea is still on the drawing board and I'll keep you informed. It would be nice if we could position the work in the recycle space as collaborative so it's not percieved as fragmented - Purchasing, Facilties and Waste Min pulling together to make a difference!

I sent off a bunch of literature/stuff to you, I hope it was the kind of stuff you were looking for.

Regards,

Deborah

cork.txt

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 005764
Date: 06-Aug-1990 02:04pm EDT
From: Deborah Grahn
GRAHN AT NHLA1 at WJOMTS at WJ
O

Dept:
Tel No: DTN 282-1443

TO: ANN FULLERTON @MLO

Subject: Recycled custodial supplies - FYI

Hi Ann, I ment to copy you on the attached message. I mentioned in this memo that you were considering somekind of a Earth Vision column in the DTW. I know it's a bit premature to make a long term committment on this effort but even if we can't, say, do it monthly right now, could we still use the Earth Vision caption or globe logo to kick the article off tieing it all back to a common committment/theme.

You see things are going on and I do not wish to miss the window of opportunity by waiting til we have the perfect plan to deal with some of this awareness stuff. What are your thoughts??

Author: Deborah Grahn
Date: 26-Jul-1990
Posted-date: 26-Jul-1990

Bill, it's kind of difficult to respond to your request without really knowing what flavor your article is going to take on but here's some stuff. If it fit's feel free to use it, if it doesn't lets talk some more.

In active support of DEC's commitment to conserve natural resources we have signed an agreement with ..... to purchase janitorial paper products (tissues & towel) made from recycled waste paper. The Fort Howard brand exceeds the EPA's guidelines for post consumer waste content... The BOA which was recently signed with The CARR Corp. will help DEC save money while preserving natural resources.

As DEC employees we need to promote a full circle approach to daily business activities, we need to be mindful of the many ways in which we can leverage the preservation of natural resources. With every purchasing and business decision we make we should understand the requirements and implications fully. We need only purchase the amount which is needed - no more or less, when that commodity is used up where will it end up?? Is it recyclable, reusable or disposable?? Does the product contain any recycled content - can this be leveraged?? Can the documents be printed on recycled paper using non-toxic inks?? Can it be shipped in reusable, recycled or recyclable containers?? Can it be packaged in environmentally friendly packaging like paper instead of plastic? These are just some of the questions to consider when negotiating with suppliers - remember to think and act in a full circle manner.

Regards,
Deborah

From: WJOMTS::WJOMTS::MRGATE::"NHLA1::GRAHN" 31-JUL-1990 17:20:19.16
To: ASABET::FULLERTON
CC:
Subj: Input for purchasing newsletter article

From: NAME: Deborah Grahn
FUNC:
TEL: dtn 282-1443 <GRAHN AT NHLA1 at WJOMTS at WJO>
To: FULLERTON@ASABET@VMSMAIL
CC: JOE COLLENTRO @CFO,
CARMINE RICCOLI@WJO

Ann, when we spoke last week I mentioned that Bill Baker was doing an article for the Purchasing Newsletter about the partnership agreement that he influenced with The Carr Corp which is a distributor of Fort Howard recycled janitorial paper products. He asked me to input to the article and attached are my thoughts. As I mentioned before Purchasing has alot of opportunity to influence in this recycle space and a little reminder on how to empower oneself may deserve mention in other publications as well.

Regards,

From: NAME: Deborah Grahn
FUNC:
TEL: dtn 282-1443 <GRAHN AT NHLA1 at WJOMTS at WJO>
Date: 26-Jul-1990
Posted-date: 26-Jul-1990
Precedence: 1
Subject: INPUT FOR YOUR ARTICLE
To: BILL BAKER @UPO

Hi Bill, sorry for the delay but I've been working an exhibit offsite for the past few days. Call tomorrow with any questions or contact me electronically.

Deb

From: ICS::NELSONK "14-Aug-1990 0907" 14-AUG-1990 09:16:48.74
To: ASABET::FULLERTON
CC: NELSONK
Subj: Of CSOs and kings

Howdy...responding to your memo of last week, late as usual. You are right about DTW and the CSO nomination. DTW is intended for DECfolks, so I really think this has no place at all in either DTW or LIVE WIRE. It would even be a stretch for a newsletter located in the same area as the CSO.

Now about the environmental thing: Let's start shooting for Q2. There are four issues scheduled for Q2 -- Oct. 9, Oct. 30, Nov. 20, and Dec. 11. I'm sure there will be a bulletin in there when the Q1 results hit the fan. I never did write anything to Anne about what we had discussed at lunch that day. Maybe I was suffering from a food hangover...Anyway, I should have written down what we talked about because now I'm real fuzzy on the details. Can you refresh my memory?

Thanx,
Late Kate

INTEROFFICE MEMORANDUM

Doc. No: 005695
Date: 27-Jul-1990 03:38pm EDT
From:
FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (JOHN CAULFIELD @GSO)

Subject: Internal PR for Waste Management Program

John,

There are two interesting opportunities that have come up in the Employee Communications world. First, Decworld (the publication, not the event) wants to do an article on the Waste Management Program. I'm meeting with the editor (Ann Howe) early next week and will provide background information. I will also recommend that you, along with the waste management program managers be interviewed directly. So when you get a call from Ann Howe -- this is what it's about.

Second, I've had some preliminary discussions with the editor of Digital This Week regarding a waste management/environmental column that would appear (at least initially) on a quarterly basis. The column would be identified through the use of the EarthVision logo. It would contain stories/info on waste management/environmental programs, achievements, etc. I'll get a final yeh or neh about the idea in about two weeks. There are several criteria both the editor and I discussed that would be key to the success of doing such a column -- one that she really stressed from her end was to have the top waste management or environmental manager endorse the column. Endorse meaning -- can use their name and quote them at least for the kick-off column. If you do not have a problem playing this role, then my negotiating gets a little easier.

Give me a yeh or neh -- endorsement-wise, and, I'll get back to you when it's a go. Then I can outline it with a process to your staff -- 'cause it's their programs that will make up this column.

Regards,
Ann

DTW - FY 91 Publication Schedule*

*In light of current budget constraints within the company, Digital This Week is changing its publication schedule. We will publish every two weeks through Q1, moving to an every-three-weeks publication schedule in October. There will be a four-week interval between Christmas and New Year's.

ISSUE DATE	COPY DEADLINE
Q1, 6 issues	
June 26	June 13
July 17	July 3
July 31	July 18
Aug. 21	Aug. 8
Sept. 4	Aug. 22
Sept. 18	Sept. 5
Q2, 4 issues	
Oct. 9	Sept. 26
Oct. 30	Oct. 17
Nov. 20	Nov. 7
Dec. 11	Nov. 28
Q3, 5 issues	
Jan. 2	Dec. 17
Jan. 22	Jan. 9
Feb. 12	Jan. 30
March 5	Feb. 20
March 26	March 13
Q4, 4 issues	
April 16	April 3
May 7	April 24
May 28	May 15
June 18	June 5

Rev. 7/90

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 005694
Date: 27-Jul-1990 03:04pm EDT
From: KATE NELSON
NELSON.KATE AT A1 at ICS at PKO
Dept: Corporate Employee Communication
Tel No: DTN 251-1307

TO: VERONICA LORENZEN (LORENZEN.VERONICA AT A1 at ICS at PKO)
TO: SHEILA FANTOZZI (FANTOZZI.SHEILA AT A1 at ICS at PKO)
TO: BARBARA DAVIS (DAVIS.BARBARA AT A1 at ICS at PKO)
TO: STEVE BISKUP @CXO

CC: ANN FULLERTON @MLO

Subject: FY91 schedule for DTW

Attached is the FY91 schedule for DTW. Please call me (DTN 251-1307) if you have any questions -- but not next week, as I will be on vacation.

Regards,

Kate Nelson

New Hampshire View

Volume 12, Number 5 April 8, 1991

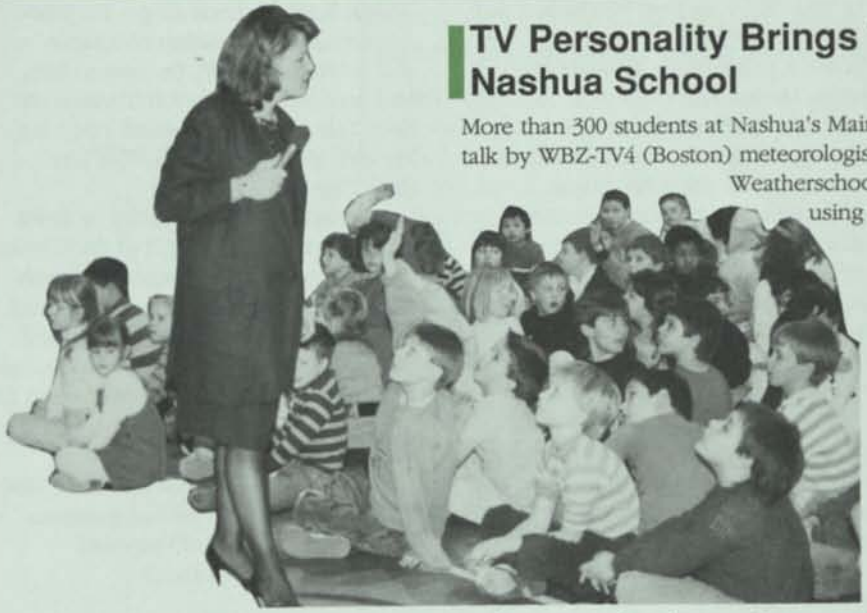
TV Personality Brings 'Weatherschool' to Nashua School

More than 300 students at Nashua's Main Dunstable Elementary School were treated to a talk by WBZ-TV4 (Boston) meteorologist Nancy Russo as a part of the Digital sponsored Weatherschool program. The children at the school have been using the Weatherschool curriculum for two years.

Weatherschool is a hands-on curriculum used in grades K-8 that emphasizes the utilization of math and science skills in the study of meteorology. The goal is for children to apply math and science concepts to their daily lives. The curriculum includes teacher guides, workbooks, charts and a software graphics program.

The Weatherschool curriculum is distributed free-of-charge to any school who wishes to participate. Interested schools can contact Digital's Northern New England Community Relations at (603)884-2963.

In conjunction with Nashua School District's Partnership-in-Education Program, Digital and Main Dunstable School have formed a partnership. More than 50 Digital employees have volunteered. •



Nancy Russo, WBZ-TV4 meteorologist, captures the interest of students at Main Dunstable School in Nashua. The presentation was part of the Digital sponsored Weatherschool program.

New Digital Services Organization Formed Under Russ Gullotti

Several weeks ago, Russ Gullotti, vice president, Corporate Services and New Hampshire host vice president, announced his plan to integrate the Corporate Customer Services (CS) and Enterprise Integration Services (EIS) organizations. A new, integrated organization has now been created under Russ called "Digital Services."

The objectives of the Digital Services organization are to:

- position Digital's services in the 90s with industry leadership, growth, and profit
- reduce costs
- eliminate charter conflicts and confusion
- continue the migration of the corporate role to one of strategic business leadership.

"As a result of this (integration) work, the existing 15 Corporate Customer Services and EIS Business Units will be reduced to nine and organized into three Business Clusters," said Russ. "These Business Clusters will focus on core competencies and major market opportunities.

"These new business clusters will be implemented immediately at corporate, with the new Corporate Business Units in place by July 1. Geography and country plans for support of the new business structure will be developed over the next few months."

The new Corporate Services Business Clusters and their managers are as follows:

- **Digital Product Services Cluster** — will provide contractual and per-call services. John Rando will manage the Digital Product Services Cluster. He is currently the Services Integration Program manager reporting to Russ.
- **Digital Systems Integration and Support Services Cluster** — three business units within this cluster will provide the program and project management capabilities, methods, tools and training to support Digital's goal to become the industry-leading systems integrator. Max Mayer will

(continued on page 9)

In This Corner. . .

You can't run a society or cope with its problems if people are not held accountable for what they do.

John Leo in U.S. News and World Report

In This Issue. . .

Facilities Launches Cafeteria Tray Return Program in MKO1/MKO2

In an ongoing effort to curtail expenses, the Facilities group has implemented a program in MKO1 and MKO2 for the return of cafeteria trays.

Tray recovery stands have been placed in nine strategic areas in MKO1 and in each of the kitchenettes in MKO2. They are identified by hanging signs which read "Please Return Cafeteria Trays Here".

Facilities requests that employees place trays in the stands to be collected. Trays will no longer be picked up in or outside offices.

It is estimated that between 500-700 trays per night are collected in the two buildings. The projected cost to the company for this effort is in excess of $15,000 per year. Employee cooperation will result in a substantial savings to Digital. Your support is needed to make this program successful.

Thank you for your cooperation. •

New Hampshire View

Editor: Judy Temple
DTN 264-4018

New Hampshire View is published triweekly by New Hampshire Community/Government Relations for Digital employees in the New Hampshire area.

Send stories, photos, ideas or suggestions to *New Hampshire View*, **MKO1-2/E15 (Judy Temple @MKO, BRAT::TEMPLE)**.

The editor reserves the right to condense, edit, or delete any copy sent for publication.

Deadlines for *New Hampshire View* have been established to help employees plan events and publicity around certain editions of the newsletter. Deadlines (including Marketplace) for future issues are:

April 29 issue – April 10
May 20 issue – May 1
June 10 issue – May 22

Produced by EIS Publications Group (PKO2-K62)

Digital is Sponsor and Player in Computer Bowl III

When the legendary east coast/west coast high tech rivalry is again played out on April 26 at Computer Bowl III, Digital will not only have a place of prominence as a sponsor, but Sam Fuller, vice president of Corporate Research, will have a place on the east team.

The Computer Bowl, a test of industry history and "techno-trivia," will be broadcast in two parts over local PBS stations on "The Computer Chronicles" the weeks of May 7 and May 14. The Computer Bowl was created and produced by The Computer Museum in Boston and is presented by the Association of Computing Machinery.

This is the third match-up. Each team has one win. This year's match is also the first "warm up" for the 1994 "Super Computer Bowl" to be played by "Most Valuable Players" (MVP's) of all previous competitions. For the first time, both teams will be captained by women and, also a first, the match will be played in Silicon Valley at the San Jose Convention Center.

The Computer Bowl has become an important fund raising event for the Computer Museum, having raised more than $1 million in cash, products and services for the Museum's education program since 1988.

Says Sam, "The mission of The Computer Museum is to chronicle the history of the computer industry, educate the public about computers and expand computer literacy. Digital is committed to helping improve the quality of math, science and computer education in America. The Computer Bowl, with its national PBS audience, and worldwide media attention, is an entertaining way to demonstrate the rich heritage and importance of this field."

Joining Sam on the east team will be: captain Pamela McCorduck, author of several books on technology; Dr. John Armstrong, vice president of Science and Technology, IBM; Dr. James Clark, vice president of High Performance and Fault Tolerant Systems, AT&T and John Markoff, technology writer, The New York Times.

The west team is captained by Heidi Roizen, president and CEO of the T/Maker Co. It features: David House, Microcomputer Component Group president, Intel Corp.; Philipe Kahn, president, Borland International; David Liddle, president and CEO, Metaphor Computer Systems and Ed Judge, director of Market Planning, Radio Shack, a division of Tandy Corp.

Microsoft President Bill Gates, the 1990 West Coast MVP, will ask the questions. •
(This article courtesy of Corporate Employee Communication)

Invest in your future.... Digital Employee Stock Purchase Plan Presentations Scheduled

The Digital Employee Stock Purchase Plan allows employees to purchase shares of Digital common stock through a convenient payroll deduction plan. To qualify, you must have completed six consecutive months of employment with the company. Eligible employees can invest from two to ten percent of their base salary in the stock purchase plan.

There are two six-month payment periods during the year. The next period is June 1 through the end of November. To enroll, simply fill out an enrollment card, which can be found on the forms board, or obtained from your Personnel Services Administrator (PSA), and mail it via U.S. Mail to Investor Services. It must be received by May 22 to be enrolled in the next payment period.

The purchase price of stock will be 15 percent below the average fair market value on either the first or last day of the payment period, whichever is the lower stock price. You may change your payroll deduction percentage only once in any payment period. Simply pick up an authorization for change card from your PSA, fill it out, and return it to Investor Services.

If you have been employed at Digital for more than six months and are interested in the stock purchase plan, attend one of the hour long presentations listed below and find out more about investing in your future.

Date	Site	Time	Conference Room
5/2	NIO	1:30 p.m.	Office Services Conference Room
5/7	NQO	9 a.m.	Wright Brothers Conference Room
5/8	DDD	8:30 a.m.	Triple Crown Conference Room
5/15	MKO	9 a.m.	Keene Room (MKO1-2/J22) •

NEWS BRIEFS

1

Guaranteed Interest Rate for SAVE Plan Fund A Announced

The new guaranteed rate for the SAVE Plan's Fund A has been set at an estimated 8.87 percent, effective April 1, down from an estimated 9.01 percent. It will remain in effect until October 1. Fund A consists of several multi-year Guaranteed Investment Contracts with insurance companies which mature at various times and Bank Investment Contracts which are insured by the Federal Deposit Insurance Corporation for up to $100,000 per participant.

2

New Semiconductor Plant Being Considered

Digital's Semiconductor Operations group is studying the feasibility of building a new semiconductor plant for future support of products to be based on CMOS technology. The new facility would supply more advanced semiconductors than can be manufactured in facilities that represent the present state of the art in the industry.

The new semiconductors would be based on CMOS (complementary metal oxide) semiconductor technology, which is increasingly popular due to the ability to design high-speed, high-density chips that do not generate a lot of heat and do not need elaborate cooling systems.

Two of the sites under consideration are Andover and Hudson, MA, where Digital owns land and already has semiconductor facilities. Ultimately the plan will have to be approved by the Executive Committee and the Board of Directors.

3

Digital Soccer Association League Kicks Off

The Digital Soccer Association announces the summer 1991 season beginning May 13. Rosters for teams wishing to participate should be sent by April 26 to Albrik Avanessian (EST::AVANESSIAN) or Bill Franklin (MFINN1::FRANKLIN). Individuals who wish to play can enter a reply in the soccer Notes file MIATA::DEC_SOCCER, or contact Bill or Abrik.

4

1991 Benefits Book Set for Distribution During April

The 1991 edition of "Your Benefits Book" will be distributed via interoffice mail during the last week of April to U.S. employees who work 30 hours or more a week. It will contain benefits information as of January and will include a new chapter on reimbursement accounts and a significantly larger medical chapter.

An expanded index will help you locate information quickly when you need it. As benefits change, you will receive bulletins updating the Benefits Book information. Keep the bulletins with your book so that you always have up-to-date benefits information.

5

Big Brothers/Big Sisters Hold 9th Annual Bowl-a-thon

Get rolling and be a part of the Big Brothers/Big Sisters Bowl-a-thon on April 20 at the Londonderry Bowling Center (candlepins). For pledge sheets and more information, call 883-4851. And remember, donations from Digital employees will be matched by Digital's Matching Gift Program.

6

MGMT MEMO Available on VTX

MGMT MEMO is sent to all managers, who are encouraged to share the information with their employees. To ensure that all employees have access to MGMT MEMO, the publication is also available as a menu selection in the Corporate Videotex Library. It can be accessed by typing "VTX MM" at the system prompt.

The videotex version is posted one week after U.S. managers receive the hard copy edition. Videotex software makes it easy to print, send, or save individual articles. The file includes the current and back issues (up to one year).

April is Child Abuse Prevention Month

Across the United States, awareness of the tremendous impact of child abuse and neglect is growing. Unfortunately, the number of reported cases of child abuse continues to rise. Digital has put corporate resources behind those dedicated to providing children with the basic skills and attitudes needed to break the chain of victimization. [See related article on this page]

Child abuse is a serious societal problem that threatens families and results in major costs to society in general. The long-term consequences of abuse and neglect of children can include chronic health problems, low self-esteem, lack of trust, poor relationships with adults and other children, difficulties in school and learning disorders.

Preventing child abuse means strengthening how a family functions or eliminating factors conducive to abuse and neglect. Shirley Ganem, executive director of the New Hampshire Task Force on Child Abuse and Neglect, said, "Communities must involve themselves with programs in all areas of prevention to be most effective. However, if these programs are to reduce the incidences of child abuse and neglect, particular attention must be devoted to the most basic prevention initiatives. Prevention is possible. We know that we can reduce the incidences of abuse by working in four areas."

The first area is through education and support for first time parents. The second area is by bringing prevention education to children in schools. Third and lastly, programs which provide continued support for parents on other levels; and programs and services for abused and neglected children are needed. Currently the NH Task Force is the only statewide organization that works in all areas of abuse prevention.

Digital Supports Prevention Education for Children

The New Hampshire Children's Trust Fund makes matching funds available to school systems and individual schools that wish to bring the child abuse prevention curriculum "Kids and Company: Together for Safety" to their students. In 1989, Digital pledged $100,000 to the Children's Trust Fund. Teacher training for school systems instituting the program will be provided by the NH Task Force on Child Abuse and Neglect at no cost.

The New Hampshire Children's Trust Fund provided funding for a demonstration project in which 40 New Hampshire educators received training in "Kids and Company: Together for Safety", a child abuse prevention program endorsed by the New Hampshire Task Force on Child Abuse and Neglect and other leading agencies, educators and law enforcement officials dealing with this issue. Schools in Merrimack, Salem, Pittsfield, Hillsboro and Woodsville participated in the initial training. Each teacher who receives the training will, in turn, train teachers from other schools in their district.

"Kids and Company: Together for Safety" is a comprehensive personal safety curriculum for grades K-6. The program provides children with skills, information, self-confidence and support which will enhance their self-esteem and help prevent abuse and abduction. The program content provides personal safety lessons through videos, songs, books, and roleplaying between children and their teachers and children and their parents.

"Kids and Company: Together for Safety" is a program of the Adam Walsh Child Resource Center, Inc. and the National Center for Missing and Exploited Children, produced with the support of Digital.

Teachers, counselors and administrators were first trained to enable them to better discharge their legal responsibilities as mandated reporters of suspected child abuse. Taking the curriculum back to their schools, the educators have provided child abuse and abduction prevention instruction to over 1,000 children and parents. "Almost without exception, teachers using 'Kids and Company' have reported the children's response to be enthusiastic and they are eager to participate with the activities", said Peggy Hill, deputy executive director of the NH Task Force on

(continued on page 12)

High-Availability and Fault-Tolerant Computing

With the release of Digital's four new VAXft fault-tolerant systems, VAXft Models 110, 410, 610 and 612, the company extended the range of its high-availability systems.

What is meant by "availability"?

All computer installations require a certain level of availability. Sometimes loss of the system or an application for a period of time — be it seconds, minutes, hours or even days — may be acceptable by users. However, many systems require higher availability levels because of the critical nature of their applications.

These so-called "mission-critical" applications can have such enormous impact on a business that they demand a higher level of availability. Mission-critical applications are often found in large, enterprise-wide computing environments called production systems.

A production system is a computing environment in which core applications run the day-to-day business of the organization. For example, computer system availability is recognized as an integral operations factor in telephone or on-line order entry, electronic funds transfer, reservation systems, message switching, factory floor control and real-time process monitoring, and emergency service dispatching.

Some of the industries most likely to benefit from the improved service levels of high availability are finance, telecommunications, manufacturing, government, media, retail, distribution, transportation and health care.

To serve these mission-critical needs, Digital offers a full range of systems with an availability level continuum extending from conventional through high availability to fault tolerance, within the same VAX/VMS computer architecture.

The Availability Continuum

At the lower end of the continuum come uniprocessors, multiprocessors, and symmetric multiprocessors (SMPs), typically used in general computing applications.

Higher availability is provided through Digital's standard methods of linking computers together, and through other hardware and software techniques. Two

(continued on page 8)

'SPOTLIGHT' SERIES

— CHANNELS SALES TRAINING —

New Hampshire View continues its series 'spotlighting' the many and varied groups found within the southern New Hampshire cluster. The 'Spotlight' Series is published at periodic intervals and focuses on groups' structure, design, charter within the Digital organization, personnel, and the interrelation with other groups.

The intent of the series is to foster a better sense of awareness and cohesion within the southern New Hampshire geography. For information regarding your group's participation in the series, please contact the editor (see editor's box, page 2) .

To provide the best solutions for all the company's markets and accounts, Digital uses a wide range of third-party channels or vendors such as Authorized Distributors, Value-Added Resellers (VAR's), software houses (ISV's), minority owned businesses and other marketing channels. These third-parties are known as Complementary Solutions Organizations (CSOs).

Digital relies on CSO's to provide add-ons and enhancements to our products. Complementary products are generally key business solutions integrated within Digital's total computing environment. Working collaboratively, Digital and CSO's try to develop the most complete solutions for their customers.

Third-party company business has grown immeasurably for Digital. Their presence, population and contribution are recognized in the information industry, and they are sought after by Digital's competitors.

Digital provides sales training programs to the company's Sales organization that recruits and manages our channels. Channels Sales Training extends to our channels the same kind of training that Digital employees receive. This is an important benefit to many companies that don't have this expertise within their own organizations.

To increase the knowledge base of Digital products, and both the productivity and profitability of CSO sales forces, Digital offers sales and sales support programs on existing and new Digital products. Educational Services and various marketing groups have formed an alliance to provide the most complete training curriculum in the industry for third-party companies.

Channels Sales Training, as part of Sales and Sales Support Training, is in the business of providing, arranging and administering training to these third-party companies.

Training goals are to influence purchase of Digital equipment and services, to increase marketshare through third-party products, to increase sales productivity and to develop new markets and additional add-on business.

Digital recognizes the need to increase customer satisfaction as well as anticipate and plan for the changing marketplace. The company's relationship with CSOs gives us more insight into the requirements of our customers, now and in the future.

Channels Sales Training is in the business of providing, arranging and administering training to third-party companies. With Manager Karl Soderquist, (front, right) are (front, l-r) Sheila Goggin; Irene Chevalier; Janet Waldman; (middle, l-r) Walt Derrenbacher; Maja Weaver; Barry Nager; (back, l-r) Bruce McHale, Ron LeVan and Ron Daigle. Missing from the photo are John Miller and Dick Beaudoin.

The two major training audiences are:

- third-party companies that have selected Digital as their computer supplier both for resale and application software platforms
- third-party companies, such as independent software vendors (ISV's) that are developing or have developed user software

A typical curriculum for a new channels customer unfamiliar with Digital's major product offerings includes:

- Purchase of Digital's Products and Services — seven text-based, self-paced sales instruction modules to prepare the customer to attend Products Service Sales Training
- Product Services Sales Training — classroom training on Digital Orientation, VAX family, Workstations, Networking and Services.
- Professional development courses in sales skills, business and management.
- Self-paced instruction courses on a wide array of topics which can be completed at the customer's convenience.

Trainees attest to the quality and value of Channels Sales Training. Here are some of the kudos the group has received:

Product Services Sales Training (PSST) — "This course has simplified the most complicated product knowledge. It is an excellent course to understand the basics of Digital products."

Independent Software Vendors (ISV) training — "For each student to have a VAXstation available during training is the best way to get the most out of technical training."

Presentation Skills — "This was the single most enjoyable learning experience I've ever had. Lab exercises and coaching by the instructor were key to the success of this program."

Karl Soderquist, Channels Sales Training manager, in summing up the group's function, says, "our purpose is simple: the more our resellers know about Digital's products and services, the more they will sell them. We want to develop a mindshare and partnership with our customers."

For more information on Channels Customers Sales Training, call DTN 264-4141 or (603)884-4141. •

SPIT BROOK OUTLOOK

ESD&P Group Captures Communication Awards

The Educational Services Development & Publishing group had winners in the 1990/91 Society for Technical Communication (STC), Boston Chapter competitions. The STC is a nonprofit, international organization for professional communicators and technical communication educators, researchers, managers and students.

Technical Publications Competition

Award of Excellence

Project: Installing and Using the VR320 Color Monitor

Elaine Farrand, Anne Nault, Angela Richard, Debbie Trongone, Karen Whitney

Award of Merit

Project: VAX 9000 Model 200 User Documentation Kit

Ellen Brace, Joseph Boyack, Michael Grinley, Arthur Johnson, Barbara Jordan, David Killelea, Jeanne Martin, Edward McFaden, Pamela Saia Roberts

Award of Achievement

Project: DEPCA Turbo Ethernet Controller Owner's Manual

Cynthia Anderson, Jack Cartwright, Dale Staupe, Debbie Trongone, Karen Whitney

Project: Installing and Using the VT1000 Video Terminal

Leslie Barrett, Rich Ilsley, Mike McHugh, Debbie Trongone, Karen Whitney, Rob Woodburn

Project: Network Wiring and Applications Guide

Gary Brennan, Bryan Gearing, Corrine Hamilton, Frank Kavanaugh, Marianne White

Technical Art Competition

Award of Achievement

Project: Healthcare Applications Workshop

Allan Davis, Pat Pasquale

Electronic Documentation Competition

Award of Distinguished Technical Communication

Project: Online Training: Using DECdesign

Laura Ervin, Holly Hendricks

Award of Excellence

Project: VAX Language Sensitive Editor/Source Code Analyzer Computer-based Instruction

Faye Arrington, Linda Mandra, Rachel Pantely, Michael Simon, Michael Zimmerman

Project: Desktop Classroom

Dae Cho, Deborah DiRocco, Yeong Chang Hwang, Robert Hynes, Elyzabeth Smiles

Award of Merit

Project: DEClearn

Faye Arrington, Mary Chaput, Dae Cho, Roland Duprez, David Ebert, Anne Hughes, Brian Osborne, William Simcox •

ZKO Health-E-Net Plans Programs for April

Blood Drive

Be a hero - give the gift of life by donating blood.

When ....April 25 from 10 a.m.-4 p.m.
Where ...Cauchy Conference Room (ZKO3-1)

The American Red Cross has revised its medical screening procedure. The blood donation process now takes one hour and fifteen minutes. Donations are accepted by appointment only. For an appointment, send E-mail to WECARE::BLOOM, indicating a first and second choice of times.

Cholesterol Screenings

Send E-Mail to WECARE::BLOOM to schedule an appointment for a cholesterol screening at the following sites:

NUO April 17 from 8:30-10 a.m.
TTB April 30 from 8:30-10 a.m.
ZKO May 16 and 22 from 8:30-10 a.m.

Nutrition for Young Children

Infants and young children have very special nutritional needs and meeting them can be a challenge. Learn more about the dietary needs of infants and children, how to plan more nutritious menus and establish healthy eating habits and attitudes.

Plan to attend "Growing Up Healthy", a seminar on nutrition for young children, on April 18 in the Cauchy Conference Room (ZKO3-1) from 12-2 p.m.

The seminar will be presented by Margaret Wilson, UNH Cooperative Extension Service.

Please register by sending E-mail to WECARE::BLOOM by April 15. •

The "Spit Brook Outlook" page in NH View features news about the Spit Brook Road facility. Employees are encouraged to submit articles of interest for publication to Marlene Hurley on ZEKE::HURLEY. For information on deadlines, call Marlene on DTN 361-1622.

Engineering Quality Technology Course Calendar

When your business depends on quality, let EQT help with the solution. Enroll now.

Date	Course #	Courses	Location/CR
April			
10-11	250-32	Intro to Exp Design and Tag Tech	TAY2-1/MIT
11	650-55	Quality Function Deployment	TAY2-1/BC
11	910-02	System Human Engineering	TAY2-1/BU
16	102-10	Intro to Six Sigma	TAY2-1/Harvard
18-19	110-22	Design & Manufacture @ Six Sigma	TAY2-1/MIT
23		Deliver @ Six Sigma	TAY2-1/Harvard
25-26	130-24	Six Sigma for Software	TAY2-1/MIT
29	280-08	Intro to RSDiscover	APO/Training Rm
May			
1		Deliver @ Six Sigma	TAY2-1/BC
1-2	902-16	Principles of User Interface Design	TAY2-1/BU
2-3	260-13	Robust Design Strategies	TAY2-1/MIT
8-9	110-23	Design & Manufacture @ Six Sigma	TAY2-1/MIT •

DECquery Software Brings Corporate Data to PC Users

DECquery for DOS and DECquery for MS-Windows are the first members of a family of database query tools for PC users. DECquery offers business professionals a simple tool to access remote corporate data held on minis and mainframes.

These software products allow PC users to easily extract the information they need, when they need it, and use it in their desktop applications. The queried data can be extracted into a variety of PC file formats for use in spreadsheets and other analysis and graphics applications. Raw data can easily be transformed into high quality charts, graphs and tables.

Howard Dresner, a marketing manager in Office Information Systems (OIS), explains the business need DECquery satisfies. "There's a 'time value' associated with data. A lot of people rely on hard copy reports of data. By the time they input the data into their PC's to analyze it, the data is no longer timely or accurate."

DECquery has captured the attention of consultants and the computer trade press as Digital's first software developed for the function-rich MS-Windows PC environment. Says Howard, "We actually produced this software ourselves — we didn't go off and buy it."

He adds, "Customers get excited about DECquery because it's something they can relate to. DECquery gives Digital some much-needed visibility on the PC desktop."

Information Services groups are equally receptive, says Howard. "DECquery helps alleviate programming backlog by enabling end users to get at the data themselves, when they need it, and in form that makes the data immediately useful." ▪

DECquery captures attention as Digital's first software developed for the MS-Windows PC environment.

DECquery will leverage sales of other Digital products and services, Howard predicts. "When people discover what they can do with DECquery, they will need more CPUs, more disk space, more database services."

The secret behind DECquery is Digital's Information Network — the strength of Digital's database and networking technology. Howard observes, "Digital supplies better connectivity to more sources of corporate data than any other vendor in the world. Digital's Information Network enables Digital to manage corporate data more securely and efficiently than any other vendor."

For information about a free DECquery return-key demo and other sales tools, see the BOSS VTX infobase. Use the key word "DECquery" at the main menu. ▪

Bruce Ryan Discusses Reduced Hotel Rates

(The following memo was distributed by Bruce Ryan, vice president and corporate controller)

In the U.S. we spent roughly $52 million on hotel rooms during FY90. This represented 600,000 hotel room nights at an average rate of $85 per night. In an effort to reduce this cost, Corporate Travel has undertaken a major program of negotiating reduced rates at hotels around the country. Negotiations are now complete with over 135 hotels in all our major domestic travel markets. The average rate negotiated is $65 per night. The hotels and new Digital rates are available to all travelers via All-In-1 at "$VTX Travel."

These hotels are what the industry categorizes "First Class," "Moderate" and "Economy" properties which are appropriate for business use. Based on FY90 usage, this new rate structure will save $12 million per year when fully utilized.

Having developed the tool, now we must use it. Presently only a minority of travelers secure lodging through American Express, our contracted U.S. agent. Company policy requires that "all hotel reservations for business travel must be made through Digital's contracted travel agencies."

The financial opportunity represented here is significant. Please respect policy in this regard and take maximum advantage of this opportunity to reduce company costs. (See related article on this page regarding DECUS travel procedures.) ▪

(This article courtesy of Corporate Employee Communication)

DECUS attendees please note....

Travel Procedures for DECUS Symposia

Digital employees who plan to attend DECUS events must utilize hotel room blocks at the associated hotels within the lodging limits for that city. For spring DECUS in Atlanta, GA, the following hotels are within the spending rates and offer transportation to the convention site:

Atlanta Downtown Travelodge $62/night single
311 Courtland St.
Atlanta, GA

Quality Inn Midtown $63/night single
1470 Spring St. NW
Atlanta, GA

Delta Air Lines is offering a negotiated rate to all DECUS attendees. The special fare provides for a 45 percent discount on full economy fares, and a 5 percent

(continued on page 12)

Forum at DDD Recognizes Women's History Month

The DECdirect/NQO Valuing Differences Committee held a panel discussion last month in the DECdirect cafeteria to celebrate Women's History Month.

The panel facilitator was Mark Stevens, one of two male managers in the DECdirect Customer Services Administration (CSA) organization. Panel members were:

Lee Erb	CSA Manager
Bobbi Crawford-Gaudette	Top New England realtor
Diane Jackson	Contributions Coordinator - Northern New England Community/Government Relations
Pam Smith	Customer Services Administrator
Luz Vazquez	Customer Services Administrator

The panel fielded questions on reaching career goals; roadblocks and obstacles for women in business; balancing work, home life, education and leisure time; changes in women's traditional values and the differences between men and women in communication and leadership styles. •

Commenting on women's issues during DDD's Women's History Month panel discussion are (l-r) Pam Smith, Diane Jackson, Lee Erb, Bobbi Crawford-Gaudette and Luz Vazquez. At the far right is moderator Mark Stevens.

High-Availability and Fault-Tolerant Computing

(continued from page 4)

approaches to linking computers are creating one of several kinds of VAXcluster systems typically utilized in MIS environments or linking computers through the master/slave architecture of the MicroVAX Implementation of a Reliable Architecture (MIRA) systems.

Fault tolerance, with the highest availability level, is provided by the VAXft series of VAX systems.

Fault Tolerance

The implementation of fault tolerance creates a system that can detect, isolate and bypass a fault without human intervention, significant delay in service, significant reduction in performance, loss of work submitted by users or loss of data integrity.

The VAXft series of fault-tolerant machines creates redundancy by fully duplicating hardware. A fully fault-tolerant system has no single point of hardware failure. It has its own internal backup power supply, which powers all internal components and data storage for up to 30 minutes. It also provides automatic notification of any failure to a Digital Service Center.

Digital is the only fault-tolerant systems vendor today that can offer on-line upgrades, during which a hardware, software, or operating systems upgrade can be performed while the system continues to deliver service to users at full performance.

Availability and Downtime

System availability is interrupted by two kinds of downtime: scheduled downtime such as routine system maintenance or upgrades. Unscheduled downtime includes every form of unpredictable event such as operator error, breakdown due to wear and tear, power outages and site catastrophes such as fire or flood.

It is now generally accepted that organizations need to introduce higher availability into their systems.

Digital has provided high-availability solutions for nearly 10 years, using the redundant-processor software strategy of its VAXcluster systems. With more than 20,000 VAXCluster and VAXft systems installed, Digital is the world's largest supplier of high-availability solutions.

Digital is committed to maintaining and extending the range of availability for its processors, software, data storage systems and networks. The recent introduction of the four new members of its VAXft series of fault-tolerant computers demonstrates and reinforces this commitment. •

Quality Management is Theme at MKO Library

Total quality management is the theme for April at Merrimack Library Services. Develop quality awareness in your department by using the ideas from some of the following sources:

- CEDAC: A Tool for Continuous Systematic Improvement
- Delivering Quality Service: Balancing Customer Perceptions and Expectations
- Exploring Requirements: Quality before Design
- A Guide to Graphical Problem-solving Processes
- Keeping Score: Strategies and Tactics for Winning the Quality War
- A Little Bit at a Time: Secrets of Productive Quality
- The Man Who Discovered Quality: How W. Edwards Deming Brought the Quality Revolution to America
- Managing the Total Quality Transformation
- Poka-yoke: Improving Product Quality by Preventing Defects
- Software Reliability Handbook
- Team Handbook: How to Use Teams to Improve Quality

Merrimack Library Services also maintains an active file of journal articles on quality. To borrow the above titles, contact the library at DTN 264-5482 or send requests to CIVIC::LIBRARY. •

DEC Ski Club Plans Full Spring and Summer Activities Calendar

The DEC Ski Club, Digital's largest club, has planned nine spring and summer events for the biggest and best Ski Club summer ever. Trips and events are open to all Digital employees; however there are separate fee schedules for members and non-members. To indicate interest in attending, send electronic mail to the trip leader.

May

18 – Annual spring picnic at the Chelmsford Elks Club featuring games, food and fun. Contact Laura Spink (VINO::SPINK).

25 – Free White Mountains hiking day trip to Mount Osceola Trail. To sign up, contact Bob Hickey (SSGBPM::HICKEY).

28 – Roller skating at Roller Kingdom in Tyngsboro, MA. from 7:30–10:30 p.m. for anyone over age 18. Skate rental is included in the $5 per person charge. Contact Sue O'Neill (SALEM::ONEILL) to sign up.

June

Dorsett, VT, cycling trip — Cycling through the Vermont countryside followed by a get-together for dinner at an inn. For date and price, contact Tom Sherman (SEEPO::SHERMAN).

29 – Road rally and cookout. Two-person teams navigate cars against the clock. A $5 charge covers food. Rain date is June 30. To sign up, contact Nancy Mahoney (CRONIC::MAHONEY).

July

20 – Third annual bicycle camping in Woods Hole. The cycling route runs along the water, with a barbecue in the evening. Campsites are 1/4 mile from the beach at an approximate fee of $10 per person per night. Contact Sue Kennedy (LDP::KENNEDY) to sign up.

Windsurfing and beach outing. Contact Sandy Merritt (WFOOFF::MERRITT), Mark Stefanski (LANDO::STEFANSKI) or Al Arsenault (BLUMON::ARSENAULT).

August

3 – Thirty-five mile cycling trip to the Greenfield Inn for swimming, food and the amenities of a state park. Contact Suzanne Rak (NOVAL::RAK) if interested.

What could be more exciting than white water rafting? Contact Allison Szklarz (MRKTNG::SZKLARZ) or Dwayne Zicolella (THEDGE::DWAYNE) for more information.

Please note that the costs and dates of these trips may change. Contact the trip leader for the latest information. •

Corporate EA Features Spring Discounts for the Family

Load the kids into the car and plan a family day at either Old Sturbridge Village or the Children's Museum, both offering discount prices.

For financial support given by Digital as a Corporate Member of Old Sturbridge Village, all employees are invited to its Corporate Appreciation Day on April 14 from 10 a.m–4 p.m. Employees will be admitted free with a Digital badge. Immediate family members will be admitted at a reduced rate of $6. Children under six are admitted free. Attendees on that day can also register to win a free museum membership.

The Children's Museum in Boston is offering discount admission passes to Digital employees. Tickets are $2.50 (usually $6 for adults and $5 for children).

See local Employee Activities representatives or Personnel Services Administrators for Activity Request forms to place orders. •

Digital Services Organization

(continued from page 1)

manage the Digital Systems Integration and Support Services Cluster and currently is the Corporate Customer Services Marketing and Business Development manager.

- **Digital Education and Consulting Services Cluster** — will focus on providing leadership in areas of management, technology, applications and information systems consulting, as well as lecture/lab, self-paced and custom training services. Pat Cataldo, currently vice president of Educational Services, will manage the Digital Education and Consulting Services Cluster. •

(This article courtesy of Corporate Employee Communication)

They're "on a roll"... EAC of MKO Plans Roller Skating Party

Getting things "rolling" for the 1991 season, the Employee Activities Committee of Merrimack is busy planning its third annual roller skating party. If you were there last year, you'll like this year's party even more.

Set aside April 29 from 6-8 p.m. for skating at the Good Times Roller Skating Rink on D.W. Highway (Route 3) in North Merrimack. Refreshments are available at the rink's snack bar.

Here are four reasons why you'll want to be there:

1. No admission charge for anyone — it's the EAC's treat.
2. If you need skates, EAC will pay the rental fee.
3. If you get thirsty, EAC will provide a complimentary soft drink.
4. To add to the fun, the EAC will be giving away door prizes from the EAC store during the evening.

The event is open to all New Hampshire employees and their immediate families. To sign up, contact the following:

Sue Asselin, TRACTR::ASSELIN
Mike Frascinella, CUPMK::FRASCINELLA

After signing up, your admission tickets will be mailed to you. •

THE MARKETPLACE

Ads must be submitted by April 10 for the April 29 issue.

Cars/Trucks/Cycles

'88 SNOWMOBILE. Artic Cat 440-JAG. 500 mi/garaged/extras. Ex. cond. $2.6K/BRO. Steven 264-3912

'87 SUBARU. 4wd/loaded. Gd. cond. $3.3K/BO. Julia 264-3016

'87 ISUZU TROOPER II LS. Ac/cass. radio. 80K mi. Dealer trade=$5075, Milt 381-1351

'87 FORD TAURUS LX. Ac/ps/pw/amfm cass. 68K mi. Ex. cond. $5.8K/BO. Jeanne 264-0206

'86 FORD TAURUS GL. Ac/ps/pb/pw/ amfm cass. 86K mi. $4.4K. Ron 381-2088

'85 SUBARU GL WAGON. Pw/pl/amfm cass. 71K mi. Ex. cond. $3K firm. Carolyn 264-4626

'80 TOYOTA CRESSIDA WAGON. At/ac/ cruise/amfm cass. 130K mi. $600. Mark 264-4057

'78 HONDA 750F SUPER-SPORT CYCLE. Windjammer/tuned/new brakes. Gd. cond. $795. Greg 264-0347

'77 FORD MAVERICK. At/ps/250 6cyl. New rad/batt/tires. inspected. 104K mi. $800/BO. Michael 264-1545

'76 MOTORHOME. Ford Blazon. New brakes/rotors/shocks/muffler/tank Ex. cond. 41K mi. $5.9K. John 285-2117

'55 NOMAD 265 V-8. 3sp/ac/ps/pb/ tinted glass. Classic. Ask. $22K. Will trade. Dick 264-3164

Furniture

MATTRESS. Sealy twin. Box spring/frame/hdbrd. Ex. cond. 1 yr. $200. Sukie 381-0031

WATERBED. King. 4 yr. w/bedding. Gd. cond. $150/BO. Michael 264-1586

TABLE+CHAIRS. Dk. pine w/2 capt's chairs+4 side chairs. 2 leaves. Ex. cond. $400/BO. Donna 264-0077

Miscellaneous

TIRES. 4. All-weather radials mounted on '85 Toyota Camry wheels. 20K mi. Ex. cond. $80/BO. Marion 381-1469

CATAMARAN. '82 NACRA 17'. trailer/cat-box/trapeze gear/ extras. Ex. cond. $1.8K/BO. Robert 264-0155

BOAT. '85 Regal cruiser. 27.5'/ 10' beam/twin 190 hp Mercruisers/ under 200 hrs/slps 6. Ask. $35K. Dick 264-3164

VIOLA. Full size/German/incl. case + bow. Like new. $327 firm. Felix 264-4034

TIRES. Pirelli. 195.60.14 fits BMW 3 series. 5 unmounted $50 ea. 1 mounted on new wheel $100. $325 for all. Bob 264-9172

BAR CHAIRS. 5 swivel/med. color stain. $125/BO. Michelle 264-9279

GOLF CLUBS. Men's L-hand. 3 woods/8 irons. Wedge/putter. Bag/cart. Men's Nike shoes, sz. 9. $275/BO. Ken 264-4904

Miscellaneous

BOY SCOUT UNIFORMS. 2 shirts/sz. 14 - $5 ea. Shirt/sz. 16 - $7. 2 prs. pants sz. 14+16 $10 ea. Ex. cond. Betty 264-0358

PROM/EVENING DRESS. Blk/sz. 11-12/sleeveless/ruffles/bow. Worn once. $75/BO. Reggie 264-2989

BIKE. Women's Schwinn. 5 sp. New tires/brakes. Incl. basket/ light/horn. $200/BO. Marian 381-1469

AUDIO SPEAKERS. JL690 Kenwood. Never used - in box. $260. Chris 264-7402

DOLL. Ashton Drake/Megan. Ex. cond.-in box. $80. Suzanne 381-1804

RING. Ladies. 14k/1.03 carat diamond. Rnd. cut. $1995 incl. cert. of value. Dave 381-1801

REFRIGERATOR. Admiral/6 cuft. Gd. bsmnt/bar refrig. $35. Gaitan 381-0594

GYM. Multifunction. Rowing/bench press/leg lifts + 30 exercises. $50. Michael 264-1586

HOCKEY SKATES. Bauer Black Panther Senior. Sz. 8D. Gd. cond. $50. Betty 264-0358

CAR SEAT. Century. Booster seat style. VG cond. $10. Ann 264-2962

Real Estate

CONDO. 2br/2.5ba/bsmnt/loft/all appl/pool/tennis. Rent $900/mo. or buy $110K/BO. Anne 264-1350

Real Estate

MOBILE HOME. New Port Richey, FL. 55'/2br/1ba/carport/screen porch/furn/cent. air. Retirement comm. $12K. Robert 264-3224

LAND. Bristol/Newfound Lake. 17 acres. Potential views. $27K/ BRO. John 381-1436

HOUSE. Cape. Candia. 2 a/3br/ 2 full ba/screen porch/2 car gar. Nr. rtes. 101/93. Reduced. $123.5K. Michael 264-2163

TOWNHOUSE. Lowell, MA. 2-3 br/ 1.5 ba/1.4K sqft/2 decks/upgrades. Ex. loc. $123.9K. David 381-0140

HOUSE. Ranch. Milford. 6rm/3br/ hw flrs/19x19' fr. Ex. cond. Ask. $104.9k. Chuck 264-9140

TIMESHARE. Slps. 6/priv. bch/ in+out pools/restaurant. Red time. BRO. Phyllis 381-1879

COTTAGE. Lake Winnepesaukee/ Laconia. Slps 6/2 ba/dock. $119K. Frank 264-5600

Rentals

CAPE. Nantucket. 3br/2ba/slps 9. 1/4 mi. to Madaket Bch. Avail. June. Heide 545-4241

COTTAGE. Waterfront/Deer Island, ME. cove. Htd/slps to 4/furn. $300/wk. Kevin 244-7219

CONDO. Concord. 3br/wd. Never occupied. Avail. immed. $550/mo. Marion 264-3960

COTTAGE. Falmouth, MA. Slps 6. 100' to bch. quiet. $550/wk. Paul 223-2138

SKI CHALET. No. Conway. Slps 8. Wd. stove/furn. Nr. down + xc skiing. Wk/wkend. Diane 264-4304, ext. 7040

COTTAGE. York Beach, ME. Slps 6/ htd/furn. $350/wk. - Jul/Aug. $200/wk. - Jun/Sep. Red 264-2467

HOUSE. Eastham. 2br/slps 4-6/lg. yd./quiet. One block to bay/lake. Mem-Labor Day - $500/wk. Mike 381-0437

COTTAGE. Winnepesaukee/100' lakefront. 4br/4 porches/lg. lr+ dr. families only. $1.2k/wk. Avail. Aug. Melissa 381-2395

CONDOS. 2. Loon Mt. 3br/2br or both. Fully equipt/fplc/cable/ pool/ jacuzzi. Wk/wkend. Kendall 264-3600

SUMMER HOME. Lake Winnepesaukee. Wolfeboro. 3br/2ba/ slps 10/ furn/priv. bch. access/wd. $400/ wk. Barbara 264-3774

BOAT SLIP. Lake Winnepesaukee. Up to 20' boat. Rest rms/locker. $700/ season. Diane 264-4304, ext. 7050

TOWNHOUSE. White Mtns. 3br/2ba/ slps 9/fully appl/deck/yard. Summer rentals. David 264-3605

AVOID ERRORS - PLEASE TYPE OR PRINT CLEARLY

MARKETPLACE - MKO1-2/E15 - DTN 264-4018

Category _____ Item _____

Description (include price) _____

_____

_____

DTN _____ Mail Stop _____ Full Name _____

INDICATE ISSUE DATE FOR AD (See Editor's Box, page 2) _____

Guidelines: Marketplace is a free service provided by NH View for Digital employees.

- Ad deadlines are listed at the top of the Marketplace page and in the Editor's Box (pg. 2)
- Ads may be submitted on a hard copy Marketplace coupon or electronically using the online coupon in the New Hampshire Live Wire section of VTX.
- The coupon must include full name, (only first name is published), mailstop, 7-digit DTN and date to be published.
- No home phones can be listed except retirees.
- Only two ads per person, per issue.
- Separate coupons are required for ads that run in more than one issue.
- NH View cannot publish ads for services (babysitting, DJ's, etc.) or for continuous profit-making enterprises
- Ads are published on a first-come, first-served basis.

NH View reserves the right to edit for space.

Taking Care of Our Home ... Earth Watch

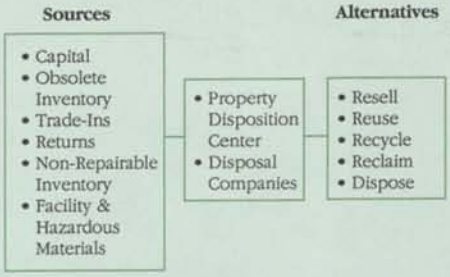
Focus on Waste Yields Results

Digital has a major opportunity to reduce its generation of solid wastes and to manage the disposition of wastes more effectively. Waste is defined in this context as product, asset, facility or process material or discharge that has no apparent productive use in its present form. Worldwide estimates are that the company annually disposes of 125 million pounds of waste. Of that, 35 million pounds is processed by Property Disposition Centers, like the one in Contoocook.

Recognizing the need for an integrated and centralized approach to manage present waste minimization plans and to establish future strategic direction, the Corporate Strategic Waste Management Group was established in July 1989 under the leadership of John Caulfield. This group's mission is to excel in waste management practices that reduce waste and save money for Digital, its customers and suppliers by developing opportunities and solutions and through employee involvement.

Broad range goals were established to set the direction for Digital and to improve on management of the far-reaching flow of waste material. The schematic below outlines the sources of waste and alternatives for its disposition:

Solid Waste Flow



Many successes have been achieved to date. In FY90 and 91, $3 million has been saved by redesign and reduction in packaging materials. A component removal machine was developed, with projected savings of $1 million annually. A recycling process is being developed for CRT tubes to save about $.05 million. To avoid the disposal of about 1.5 million pounds of plastics in landfills annually, a recycling program for plastics was established. A program office was established to set plans and goals to eliminate CFC's (chlorofluorocarbons) from manufacturing process by the end of FY93. In the United States, the Property Disposition Centers have been consolidated in Contoocook to eliminate more than one-half million square feet of space.

Several Product Creation Units (PCU's) have expressed interest in waste management technology and are striving to use more environmentally friendly materials in addition to improving design techniques for disassembly. One of the tools engineering will use to identify and select more environmentally friendly materials is the Material Identification System, currently under development.

"What's good for the environment is good for business."

Dave Weil

A major effort is underway to redistribute idle assets. A project to identify and redistribute idle computer equipment will reduce the need for organizations to order new equipment. (One such project was recently completed at a number of New Hampshire sites.) During the first six weeks of the program, $0.5 million of assets was redistributed. Also, the Internal Equipment Group (IEG) is currently redistributing used equipment. In tandem with that effort, enhancements to the DIAL (Digital Idle Asset Listing) system are making it more user friendly and accessible.

Employees are encouraged to propose and implement solutions to waste problems. Local teams and the DELTA program are two ways to get involved. The Corporate Strategic Waste Management Group encourages and supports all efforts to help Digital achieve excellence in waste management practices.

As Dave Weil, Waste Management business planning manager emphasizes, "What's good for the environment is good for business." •

Digital Sets 1993 Goal to Reduce Packaging Waste by 20%

Digital announced that it has accepted the Coalition of Northeastern Governors' (CONEG) Challenge to reduce packaging waste, and has set a reduction goal of 20% or 5,400 tons by July 1993.

The CONEG Challenge was issued recently by Maine's Governor John McKernan, Jr., in a press conference. It calls for industry to voluntarily reduce usage of packaging materials through source reduction.

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations currently represents approximately 27,000 tons of disposable materials with associated costs of $150 million annually.

John Caulfield, corporate manager of the Waste Management Program, stated, "The reduction of solid waste is a major environmental challenge. Digital's packaging waste management program was initiated early in 1989 as part of a corporation-wide waste management initiative.

(continued on page 12)

Remember...

EARTH DAY 1991
April 20

Marketplace

(continued from page 10)

Rentals

HOME. Martha's Vineyard. Water views. 3br/ 2ba/fully furn. Gd. wks. avail. July $825/wk. Aug. $875/wk. Donna 223-6086

CONDO. Mittersill/Cannon Mt. 1br/ slps 4/full kit/pools. $400/wk. Larry 264-0429

APARTMENTS. Lowell, MA. 2 in restored Victorian. Porches/hw flrs/mod kit/ldy/gar. 2br-$550/ mo. 3br-$600/mo. Cathy 291-0382

COTTAGE. Lake Winnepesaukee/ Laconia. Slps 6/2 ba/dock. $475/wk. Frank 264-5600

HOUSE. W. Hyannisport, MA. 2br/slps 4/walk to bch/near all. $350/wk. Rima 264-4946

Roommates

M NON-SMOKER to share home in MKO. $400/mo. Util. incl. Steve 264-2074

M/F to share Londonderry house. $400/mo+ 1/2 elec. Ht. incl. Ginny 285-3550

M NON-SMOKER to share Londonderry home. $400/mo. Util. incl. Tom 264-8366

Wanted

ALUMINUM ROW BOAT OR JOHNBOAT. Bill 381-1010

BANJO. 5-string preferred. Not perfect, but playable. Steve 264-1471

What's New at The LIFE Centers This Spring??

MKO LIFE Center

1991 MKO Health Fair

In conjunction with Health Services, The LIFE Center Program will host the 1991 MKO Health Fair. Mark this in your calendar:

Date — April 24
Time — 9 a.m. - 2 p.m.
Place — The LIFE Center (MKO1-1/F14)

Some of the wellness screenings and information booths planned are:

- carbon monoxide screening
- spinal screening
- diabetic screening
- glaucoma test
- biofeedback
- outdoor activity safety
- massage therapy
- foot care
- body compositions
- karate demonstrations
- nutritional information

Take a break from your day and do something for yourself - just for the health of it!

[**PLEASE NOTE:** The LIFE Center will be closed from 8 a.m.-3 p.m. on Health Fair Day, April 24.]

Aerobic Instructor Training Course

This complete aerobic instructor course is ideal for those who would like to obtain the skills and confidence to lead safe, effective group exercise classes or for current instructors who want to update themselves on the latest theories and techniques. Certificates of completion will be awarded to those who successfully satisfy the requirements of the course.

Exercise specialists from Blue Cross/Blue Shield of New Hampshire's Health Risk Management Department will instruct the weekly classes.

When ....April 16-May 21
5-7 p.m. at the ZKO Wellness Center
5:30-7:30 at Blue Cross/Blue Shield of NH in Concord
Cost $95

Interested employees can contact Bernadette Stephens, ZKO Wellness Program Coordinator at DTN: 381-0643 (WECARE::STEPHENS).

NIO LIFE Center

Exercise classes — Spring registration for classes is in full swing. If you are interested in taking low impact aerobics, Jazzercise, stretch and flex or Yoga, drop by the exercise room for a spring registration packet. Packets are also available at Health Services (NIO/D11).

Home Landscaping and Gardening — Get your home ready for the warm weather with NIO's grounds manager, Steve Chapman. Steve will tell you all you need to know about your garden, planting, transplanting and more on April 9 at noon in the Martin Luther King Conference Room.

Eater's Choice cholesterol treatment program — This comprehensive six-week program demonstrates how to decrease saturated fat and cholesterol. The class meets on Thursdays beginning May 2 at 3 p.m. If the results of your recent Health Services screening showed elevated cholesterol levels, this program is for you. Class size is limited to 15.

Stop smoking with hypnotherapy — Sign up today to be part of this two-hour smoking cessation program on April 25. The $35 fee includes an audio cassette and reinforcement visits, if necessary. Pre-registration is required.

Massage therapy — Relieve stiff necks, aching shoulders and that stressed-out feeling with a 15-minute massage by a certified massage therapist. Appointments can be made on the third Thursday of each month from 12-2 p.m. and are taken on a first come, first served basis. Reservations are being taken now for April 16. •

Packaging Waste

(continued from page 11)

To date, the program has yielded a reduction in the rate of packaging waste from Digital's operations going to landfills by 1,800 tons annually and a reduction in overall packaging costs of $2.7 million. Taking the CONEG Challenge affirms Digital's commitment to reduce the generation of waste at the source through cost-effective changes in materials usage."

Digital's Packaging Program addresses all aspects of packaging materials (inbound from suppliers, within facilities, intersite between Digital facilities and outbound to customers). The program is composed of projects focused on source reduction, reuse and/or recycling. Specific projects include reusable packaging, source reduction through package redesign, packaging recycling, elimination of chlorofluorocarbon(CFC)-processed packaging materials and alternative materials usage. •

(This article courtesy of Corporate Employee Communication)

"Taking the CONEG Challenge affirms Digital's commitment to reduce the generation of waste at the source.....

John Caulfield

Prevention Education for Children

(continued from page 4)

Child Abuse and Neglect, "School principals have called to thank us for the training as well as the financial support from Digital for making the project a success."

Digital has also pledged $100,000 to the Massachusetts Children's Trust Fund in helping promote and secure funding of "Kids and Company: Together for Safety" in Massachusetts schools.

For more information about the program call the New Hampshire Task Force on Child Abuse and Neglect, at 225-5441 or Digital's Northern New England Community/Government Relations, at DTN 264-2964. •

Travel Procedures for DECUS Symposia

(continued from page 7)

reduction on published special fares, providing the rules of the particular fare are met. Digital employees requiring a car rental must utilize Avis Rent-a-car. Please contact the travel agency under contract to your site to arrange for your DECUS airline and car rental needs. •

Recycle NH View...

New Hampshire View is printed on recycled paper. Please recycle this copy when you finish reading it. Thank you. •

I N T E R O F F I C E M E M O R A N D U M

Doc. No: 007784
Date: 19-Feb-1991 12:33pm EST
From: FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: John Caulfield @GNO HN AT A1 at AUNTB at ALF)

Subject: RE: ANY INPUT?

John,

My suggestion would be to r

1. a complete decr des a membership ro e works, what the goal/v ce to the business co al (specifically)

2. an explanation c cting a representative from Digital to uired and what time commit

3. a justification for why participation in this group, at this level is necessary, i.e., given the current business climate, the need for the corporation to align resources with appropriate work and the number of EH&S groups/associations Digital is currently involved in, can this work be justified from a cost/benefit perspective?

If you want me to get more specific, let's talk.

Ann

(1) presentation
(2) and re: Polly's participation
(3) Vienna
(4) ~~A~~ ← STRATEGY
(4) ASK FOR A SHORT SUMMARY OF EACH

I N T E R O F F I C E M E M O R A N D U M

Date: 12-Feb-1991 01:55pm EST
From: POLLY STRIFE
STRIFE.POLLY AT A1 AT ICS AT P
KO

Dept: Environmental Health & Safety
Tel No:

TO: JOHN CAULFIELD @GNO

Subject: International Business Center of New England

John,

In December I participated on a panel as a aprt of an International Business Center (IBC) of New England symposium on environmental management. They have now invited me to be a member of the IBC Environmental Committee. I've checked and we are members of the IBC.

I'd like to do this. Do you have a problem with it?

Polly

PROPERTY DISPOSITION CENTER

- In 1989, Digital processed 18 million pounds of excess and obsolete equipment
- Analysis indicated current approach needed to be standardized
- Recommendation made to legitimize the disposition process with Profit and Loss ownership and responsibility
- Based on recommendation a pilot project consolidated all U.S. operations into a single property disposition center
- Results to date include:
  - -- cost savings of @$3.8 million
  - -- establishment of an audit and certification system that effectively incorporates sound environmental and security procedures into the disposition process

CFC PROGRAM

- In 1987, 24 nations, including the U.S. ratified the Montreal Protocol which promulgated the reduction of CFC usage by 85%

- Digital's estimated usage in its manufacturing facilities worldwide, at that time, was @ xxx tons

- In 1988, Digital instituted a worldwide CFC Policy, and set up a cross-functional task force to implement solutions throughout the corporation

- In 1989, CFC-usage was reduced by 50% at one of Digital's largest storage manufacturing facility in Kaufbeuren, Germany

- In 1990, Digital developed a waste-based CFC-alternative cleaning process for the manufacture of surface-mount printed circuit boards

- In 1990, a formal CFC Program Office was instituted as part of Digital's Waste Management Program

- To date, Digital has decreased CFC-usage by xx% and has targeted 19xx for complete elimination in its manufacturing processes

PAPER RECYCLING

- Digital disposes of @ 15 million pounds of paper worldwide per year
- For the past ten years, Digital has had paper recycling programs in many of its facilities
- Implementation of a corporate-wide paper recovery/recycling program is currently underway
- Year-to-date figures for 1991 indicate that @ xxx pounds of paper have been recycled
- This equates to a cost avoidance of @ $xxx
- To date, 80% of Digital's manufacturing facilities have implemented paper recycling programs
- The goal of the corporate-wide program is to have 100% compliance throughout all Digital facilities

I N T E R O F F I C E M E M O R A N D U M

Date: 20-Feb-1991 11:32am EST
From: FULLERTON.ANN
Dept: PR Corporate Info Group
Tel No: 223-6045

TO: Remote Addressee (JOHN CAULFIELD @GNO)

Subject: Waste Management Presentation

John,

Following is a Waste Management Presentation. It is written for an external audience, for example if you would have presented at the GEMI Conference, this is the type of presentation I would have envisioned.

There are holes were numbers are currently not available or I have not been able to get. If the general flow is on target this can be rectified by rewriting those points to reflect numbers/statistics that we do have.

The text can be adapted for slides or overheads.

I will have a hardcopy of it available for you on Thursday, 2/21.

Regards,
Ann

DIGITAL EQUIPMENT CORPORATION

- Founded in 1957
- One of the largest computer manufacturers
- 121,000 employees worldwide
- 38th of Fortune 50

DIGITAL'S WASTE MANAGEMENT INITIATIVE

- Corporate commitment to taking an active role in addressing environmental issues
- All environmental initiatives are based on a seven point policy
- One key tenet of this policy is "the corporation will conserve natural resources"
- To this end, a formal Corporate Waste Management Program was instituted early in 1988

DIGITAL'S WASTE MANAGEMENT PROGRAM

- Seeks to reduce waste at the source by cost-effective changes in process technologies and materials usage
- At the program's inception, Digital disposed of 125 million pounds of waste per year
- Equated to a cost of $500 million per year
- A goal was set to reduce disposal volumes by 50% in five years

STRATEGIC CHALLENGES

- Waste management is a key business issue
  - -- develop a cost model to legitimize activites from a business perspective
  - -- identify and formalize a waste stream
- Integrate waste management practices worldwide throughout the organization
- Promote behavorial changes necessary for integration through employee involvement

PROGRAM APPROACH

- Separate current disposal issues from long term source reduction issues

- Set-up programs to address current disposal issues that would yeild immediate cost savings to the corporation

- Simultaneously identify long-term programs necessary to achieve true source reduction

EXAMPLES OF CURRENT

DISPOSAL/ELIMINATION ISSUES

- excess and obsolete equipment
- paper, plastics, component recycling
- product packaging
- CFC elimination

EXAMPLES OF PROGRAMS INSTITUTED TO ADDRESS CURRENT DISPOSAL/ELIMINATION ISSUES

PROPERTY DISPOSITION CENTER

- In 1989, Digital processed 18 million pounds of excess and obsolete equipment
- Analysis indicated current approach needed to be standardized
- Recommendation made to legitimize the disposition process with Profit and Loss ownership and responsibility
- Based on recommendation a pilot project consolidated all U.S. operations into a single property disposition center
- Results to date include:
  - -- cost savings of @$3.8 million
  - -- establishment of an audit and certification system that effectively incorporates sound environmental and security procedures into the disposition process

PACKAGING PROGRAM

- For Digital and its trading partners packaging waste represents @ 27,000 tons of disposable material annually
- This equates to an estimated cost of @150 million annually
- In 1989, Digital initiated a corporate-wide packaging program
- A program goal was set to eliminate 5,400 tons of packaging materials decreasing costs by $30 million by 1993
- Reduction methods include packaging recycling, source reduction, alternative material usage and elimination of CFC-processed packaging materials

CFC PROGRAM

- In 1987, 24 nations, including the U.S. ratified the Montreal Protocol which promulgated the reduction of CFC usage by 85%

- Digital's estimated usage in its manufacturing facilities worldwide, at that time, was @ xxx tons

- In 1988, Digital instituted a worldwide CFC Policy, and set up a cross-functional task force to implement solutions throughout the corporation

- In 1989, CFC-usage was reduced by 50% at one of Digital's largest storage manufacturing facility in Kaufbeuren, Germany

- In 1990, Digital developed a waste-based CFC-alternative cleaning process for the manufacture of surface-mount printed circuit boards

- In 1990, a formal CFC Program Office was instituted as part of Digital's Waste Management Program

- To date, Digital has decreased CFC-usage by xx% and has targeted 19xx for complete elimination in its manufacturing processes

PAPER RECYCLING

- Digital disposes of @ 15 million pounds of paper worldwide per year

- For the past ten years, Digital has had paper recycling programs in many of its facilities

- Implementation of a corporate-wide paper recovery/recycling program is currently underway

- Year-to-date figures for 1991 indicate that @ xxx pounds of paper have been recycled

- This equates to a cost avoidance of @ $xxx

- To date, 80% of Digital's manufacturing facilities have implemented paper recycling programs

- The goal of the corporate-wide program is to have 100% compliance throughout all Digital facilities

LONG TERM SOURCE REDUCTION

ISSUES

- Point solutions to immediate disposal issues provide short term, tactical solutions
- If source reduction is the goal, a company needs to address integrating waste management practices into its day-to-day practices
- For Digital this means embedding these practices throughout the design and manufacturing process

EXAMPLES OF PROGRAMS FOR LONG TERM SOURCE REDUCTION ISSUES

MATERIAL IDENTIFICATION PROGRAM

- Before source reduction can be implemented, a company needs to identify the materials it is currently using to design and manufacture its products

- Concurrent with the formalization of the various disposal programs described, Digital inaugurated an effort to develop a process and information technology tool that could identify the basic materials it was using in the design of its products

- Digital is currently implementing a pilot project to develop an information technology tool that designers throughout the corporation can use to determine the environmental impact of materials specified

THE FUTURE

- Digital's Waste Management priorities over the next five years include:
  - R&D work and investment in recycling processes for materials that present an environmental risk
  - application and development of information technology tools that promote sound environmental practices
  - addressing the disposition of a product at the design stage rather than end-of-life
  - setting waste management standards that are environmentally-sound, as well as consistent with current worldwide regulations

DIGITAL'S WASTE MANAGEMENT INITIATIVE

- Corporate commitment to taking an active role in addressing environmental issues
- All environmental initiatives are based on a seven point policy
- One key tenet of this policy is "the corporation will conserve natural resources"
- To this end, a formal Corporate Waste Management Program was instituted early in 1988

STRATEGIC CHALLENGES

- Waste management is a key business issue
  - -- develop a cost model to legitimize activites from a business perspective
  - -- identify and formalize a waste stream
- Integrate waste management practices worldwide throughout the organization
- Promote behavorial changes necessary for integration through employee involvement

PROGRAM APPROACH

- Separate current disposal issues from long term source reduction issues
- Set-up programs to address current disposal issues that would yield immediate cost savings to the corporation
- Simultaneously identify long-term programs necessary to achieve true source reduction

DIGITAL EQUIPMENT CORPORATION

- Founded in 1957
- One of the largest computer manufacturers
- 121,000 employees worldwide
- 38th of Fortune 50

PACKAGING PROGRAM

- For Digital and its trading partners packaging waste represents @ 27,000 tons of disposable material annually
- This equates to an estimated cost of @150 million annually
- In 1989, Digital initiated a corporate-wide packaging program
- A program goal was set to eliminate 5,400 tons of packaging materials decreasing costs by $30 million by 1993
- Reduction methods include packaging recycling, source reduction, alternative material usage and elimination of CFC-processed packaging materials

DIGITAL'S WASTE MANAGEMENT PROGRAM

- Seeks to reduce waste at the source by cost-effective changes in process technologies and materials usage

- At the program's inception, Digital disposed of 125 million pounds of waste per year

- Equated to a cost of $500 million per year

- A goal was set to reduce disposal volumes by 50% in five years

EXAMPLES OF CURRENT DISPOSAL/ELIMINATION ISSUES

- excess and obsolete equipment
- paper, plastics, component recycling
- product packaging
- CFC elimination

EXAMPLES OF PROGRAMS INSTITUTED TO ADDRESS CURRENT DISPOSAL/ELIMINATION ISSUES

LONG TERM SOURCE REDUCTION

ISSUES

- Point solutions to immediate disposal issues provide short term, tactical solutions
- If source reduction is the goal, a company needs to address integrating waste management practices into its day-to-day practices
- For Digital this means embedding these practices throughout the design and manufacturing process

EXAMPLES OF PROGRAMS FOR LONG TERM SOURCE REDUCTION ISSUES

MATERIAL IDENTIFICATION PROGRAM

- Before source reduction can be implemented, a company needs to identify the materials it is currently using to design and manufacture its products

- Concurrent with the formalization of the various disposal programs described, Digital inaugurated an effort to develop a process and information technology tool that could identify the basic materials it was using in the design of its products

- Digital is currently implementing a pilot project to develop an information technology tool that designers throughout the corporation can use to determine the environmental impact of materials specified

THE FUTURE

- Digital's Waste Management priorities over the next five years include:
  - R&D work and investment in recycling processes for materials that present an environmental risk
  - application and development of information technology tools that promote sound environmental practices
  - addressing the disposition of a product at the design stage rather than end-of-life
  - setting waste management standards that are environmentally-sound, as well as consistent with current worldwide regulations

10/26 Draft

John C. Letter

In the past, Digital has focused mainly on the disposal of waste to meet or exceed the environmental standards set by governments. Today, Digital is focusing on source reduction -- don't build it or buy it, if it isn't needed.

Over the years, many Digital sites have done an excellent job of dealing with waste and environmental issues, but their activities were largely separate and local. My role, as the corporate waste management program manager, is to integrate these activities, and identify new areas of opportunity (with implementation plans????) for source reduction.

The complexity of doing business on a global basis coupled with the current quantity and diversity of government regulations has now reached the point where a tighter degree of coordination is needed to ensure Digital is doing the right thing in all its locations throughout the world.

One of the biggest challenges to achieving this integration is (effectuating) behavior change about waste throughout the corporation. The program must build awareness, concern, processes and habits that make waste management a routine part of Digital's business operations.

Fortunately, Digital has many enthusiastic employees, who are working for site waste reduction programs. I receive notes daily from empolyees asking, "How can I help?" How successful Digital is at channeling this momentum, i.e., truly achieving widespread employee involvement, will be a key ingredient to the successful implementation of the program.

When people start becoming more aware of waste across an entire site -- in terms of office supplies, lights and power -- waste management can truly be seen as good business practices with tangible evidence of cost avoidance ~~can be identified~~ at the bottom line.

A key tenet of Digital's seven-point environmental policy is xxxxx. It is part of Digital's EarthVision -- the goals the company's seeks to achieve environmentally. ~~It~~ EarthVision is the waste management program's vision to implement a world-class waste management program. It will take time and a lot of hard work, but Digital is prepared to invest in the future benefits such programs will provide to the global environment.

INTRODUCTION

Digital is commited to taking an active role in addressing environmental issues. To this end, Digital instituted a formal Waste Management Program early in 1988. The program, under the direction of senior management, seeks to reduce worldwide the generation of waste at the source through cost-effective changes in process technologies and materials usage.

Early in 1988 when the program began, Digital disposed of an estimated 125 million pounds of waste per year, at a cost of approximately $500 million. At that time, the company set a overall goal to reduce disposal volumes by 50% in five years.

Digital is proud to report that in the program's first year and half, it has made significant achievements toward this end. On the following pages the waste management programs and projects that have enabled Digital to effectively reduce waste through environmentally-sound practices are described.

Digital is particularly proud of the work it has done in the areas of energy management, packaging and plastics recycling. With these programs the company has been able to not only reduce current usage, but look ahead and initiate proactive research and development work that will decrease and, in certain areas, eliminate, usage of materials that would otherwise end up in already overburdened landfills.

Central to the waste management program is its integration into the company's business practices. Waste management is good business. It can only be achieved if it is integrated into all employees' work environment.

Throughout Digital, many committed employees -- environmental professionals and non-environmental professionals -- have worked to implement not only the formal waste reduction programs described on the following pages, but their own innovative projects.

It is perhaps the program's biggest challenge to foster such employee involvement. Only through every employee finding new ways to reduce waste, recycle materials and substitute safer materials for those that could pose a potential environmental risk can Digital truly achieve a world-class waste management program.

Although Digital has made major inroads on several key waste management issues, there is still much work to be done. In many areas the answers are not simple or easy. They will require time and extensive investment. Digital accepts this challenge, and through its employees, will continue to build on its waste management accomplishments to fulfill its long-term commitment to responsible environmental citizenship.

PACKAGING PROGRAM

CHALLENGE

Packaging waste from manufacturing, sales and service operations for Digital and its trading partners represents approximately 27 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, ~~between~~ among Digital and its trading partners on packaging-related expenses (materials, manufacturing and distribution process and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective.

SOLUTION

Digital instituted a Packaging Waste Management Program to reduce waste and its resulting cost in 19xx. The program addresses all aspects of packaging-related material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

In several areas, such as source reduction, the program formalizes existing efforts, and provides a forum for packaging engineering organizations as well as individuals within manufacturing and distribution sites to transfer and ~~leverage~~ promote new ideas and information on reusable packaging and alternative materials.

Specific projects fall into several categories that include, but are not limited to: packaging recycling, resuable packaging, source reduction, elimination of Chlorofluorocarbon (CFC) processed packaging materials and alternative materials usage.

RESULTS

- 20% reduction in overall packaging costs with a net effect to date of savings of $1.6 million for FY90 (is this true???)
- Reduced dependency on landfills (anything more specific we can throw in here??? -- like pounds of stuff annually we are not putting in landfills???)
- Elimination of CFC-processed packaging materials by 19xx

FUTURE PLANS

The overall goal of the packaging program is eliminate xxx pounds of packaging disposal and thereby decrease packaging costs by $30 million by 1993. To achieve this goal several strategies are currently being implemented.

These include mobilizing employees in geographic areas and sites to support and begin execution of program **** (what program specifically -- like source reduction, if so of what; or reusable packaging; etc.) **** during FY91; establishing a pilot project for outbound reusable packaging; and expanding packaging effort in FY92-93 through aggressive goal setting.

Unless you have commas o/in the listing you can't promote the commas to semis dummy!

ENERGY MANAGEMENT PROGRAM

CHALLENGE

Digital facilities use approximately $150,000,000 ***(is this a worldwide figure, also can you give this in energy terms kilowatts, etc.)*** in energy annually. The primary source of this energy is electricity (used for lighting, computers, air conditioning, motors, pumps, etc.) with smaller amounts of natural gas and fuel oil providing energy for heating.

For several years now energy conservation has been a key issue for not only the United States, but the global community. More and more scientific data regarding the negative impact of burning fossil fuels to the environment has become available, as the associated costs have continued to rise. Businesses and individuals alike need to address improving efficiency and decreasing usage.

SOLUTION

Digital has had an energy management program in place since 1972. The program's goal is to eliminate waste and thereby effect efficient and cost-effective use of energy sources. Specific projects include, but are not limited to:

- Installation of energy management systems in Digital facilities. These systems employ cost-effective energy technology such as high-efficiency lighting systems, environmental control systems, heat exchangers and power factor correction equipment. ****How many facilities employ

an energy management system in the U.S.? worldwide?****

- Participation with utility companies in their load management programs ****(define load management program -- what is it? what is the benefit?)****

- Development work with utilities and vendors to identify processes and products for utility management, power production and load shifting. *****Example of such a product or process with a simple definition of it we jointly developed ?????*****

- Conducting pilot projects ***(such as???)*** for testing new energy management products and technologies.

- Offering an annual two-day energy management workshop/seminar for Digital Facilities management to provide the latest information on energy management techniques and equipment.

- Instituting the Energy Investment Program to provide funding ****(outside of normal budget cycle?? what does this mean***) for Digital facilities to implement energy management programs. *****Examples of some projects????****

- Co-sponsor visits by local utility companies to Digital facilities to make energy conservation presentations to employees. The presentations provide information on energy-efficient hardware for the home, how to do home energy audits and examples of energy-saving projects that can be implemented in the home.

RESULTS

- Energy Investment Program projects implemented are currently saving $1,030,000 annually ****(any figures on decreased usage or energy savings???? -- I'm looking for the environmental angle here) Any specific projects that came out of these -- how about a couple of them?????*****

- Participation in a Rebate Program with Massachusetts Electric utility that provides rebates for energy management projects has yielded a savings of $466,000 annually ****(again any figures on energy saved???)*****.

- *****Any specific technology we did a pilot project with that yielded great results?????*****

- ** If you haven't guessed yet I am looking for specific or general success stories for the results section ****

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program particularly in the areas of ***** xxxx and xxx.***** Is there an overall goal in terms of energy reduction or cost avoidance for the next couple of years we can refer to here?*****

In addition, efforts to educate our employees ~~on~~ about home and work energy-efficient practices will be expanded. **I don't think we should mention specific vendors -- the lawyers could have some problems***

**** Are there any current in process or planned specific pilot projects for new technology or new processes?****

*** Can you tell I'm grasping here -- perhaps another way to look at it is if you had to tell someone what your projects were for the next year or two. ******

CFC PROGRAM

PROBLEM

Scientific evidence has strongly indicated that chloroflurocarbons (CFCs) are destroying the protective ozone layer that shields the earth from harmful ultraviolet radiation. Like most computer and electronics companies Digital uses CFCs as a cleaning solvent in its manufacturing processes.

Digital is currently faced with a major challenge to reduce its worldwide usage of CFCs by 85% by the year 1995. This goal is consistent with the worldwide phase-out efforts driven by the Montreal Protocol (an international treaty, ratified in 1987 by 24 nations including the United States, that calls for a cut in the production and consumption of CFCs to xx% by the year 19xx).

SOLUTION

For several years Digital has been working with other electronics companies on the CFC problem. In 1986, Digital chaired a CFC Task Force established by the American Electronics Association (AEA) Environmental Committee. The Task Force worked with the U.S. State Department and the U.S. Environmental Protection Agency to formulate the U.S. positions ~~which~~ that later were used in the development of the Montreal Protocol.

In June of 1988, Digital instituted a worldwide CFC Policy to "reduce immediately, and where possible, to eliminate the company's use of CFCs." This policy represented a company-wide commitment to do everything feasible to eliminate the use of CFCs within Digital. Concurrently, a CFC Task Force composed of representatives from the major users within Digital was formed to coordinate implementation of the phase-out policy.

Individual Digital employees also have played visible roles both as initiators of research and development activities and as advisors to public policy forums. For example, Leo Lambert, who spearheaded the transition in Digital ten years ago to water-based cleaning systems for printed circuit board modules, currently is an advisor to the United Nations Environment Programme.

Research and development activities based on Mr. Lambert's seminal work on water-based cleaning systems continue, and currently are targeted at understanding how to apply this process to other types of manufacturing processes that use CFC solvents.

Most recently, Digital joined the Industry Cooperative for Ozone Layer Protection. The cooperative is a joint venture between the U.S. Environmental Protection Agency and several multinational companies. Its purpose is to exchange information and technology for the worldwide reduction of CFC usage in the electronics industry.

RESULTS

Projects include, but are not limited to:

- Developed a water-based cleaning process to replace the use of CFC cleaning solvents in the manufacture of surface-mount printed circuit board modules, and offered process specificati to ICOLP to distribute free of charge to the electronics industry.
- Storage manufacturing facility in Kaufbeuren, Germany decreased CFC-usage by 50% in 1989 via installation of recycling system. Its sister facility in Colorado Springs is in the process of installing the same system resulting in similar decrease.
- xxx facility in Massachusetts 100% CFC-free in 1990.
- Use of CFC-processed packaging will be phased out as of month, year.
- The use of halon as a fire suppressant is being replaced by carbon dioxide where possible.
- The practice of releasing halon during equipment testing has been discontinued.
- Annual total data -- if there is a sizable decrease

FUTURE PLANS

Digital's goal is to eliminate CFC usage from its manufacturing facilities by 19xx. Initially, the company focused on establishing good maintenance procedures and recycling processes. Future efforts will focus on increased research and development on alternatives.

CFC usage presents an ongoing problem that will not be solved quickly or easily. Although CFC elimination is a high priority for Digital, CFCs are used for many different purposes and their total elimination will not occur immediately. The development of non-CFC products and the design of new processes that do not require CFCs will take time and will require extensive investment.

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills.

Landfills as a disposal method are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, and are projected to rise to approximately $500 per ton by the mid-90's.

SOLUTION

Digital instituted a Plastics Recycling Project early in 19xx. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives ~~were~~ have been established.

In the short term, an objective to eliminate the current plastics inventory was established. Working with suppliers, a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic is then ground up and sold on the open market.

In the interim period, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This would enable future processing of the material.

For the long term, efforts are currently in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in product devlopment work.

RESULTS

- Disposal of 100,000 pounds in Q4, FY90 (calendar year = ?) of plastic through the decontamination process instead of using landfills. Can we project this to what the savings will be in a year??
- Reduction of current plastic inventory by 4:1 (25%?) through purchase and installation of a granulator at the company's northeast PDC.
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into test samples of a product that are currently being evaluated. It is anticipated that the company will soon be able to specify recycled resins as acceptable for the manufacture of products.

FUTURE PLANS

Research and development funding has been appropriated in several areas for use during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins; the effect of multiple recylcing on resin characteristics; and the development and testing of new applications for recycled resins.

In addition, to enhance sorting techniques, a process to imprint plastics identifiers on each product part is being piloted. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces costs. Full scale usage of this process ~~is expected to be implemented~~ implementation in Qx, FYxx. calendar year

RECYCLING PROGRAM

*****CRTs/VDTs??? (what are they really that we are referring to -- a Cathode Ray Tube or A Video Display Terminal, which is also referred to as a monitor)*****

CHALLENGE

CRTs/VDTs are commonly disposed of throughout the industry ~~via~~ in hazardous waste landfills. Increasing environmental concerns in conjunction with more stringent regulatory standards indicate the limitation of these types of landfills. Environmentally-sound alternative methods need to be identified and implemented.

SOLUTION

A project team was formed to develop a short- and long-term strategy for the ~~disposition~~ disposal of CRTs/VDTs. The project goal was to identify methods for recycling CRTs/VDTs thereby eliminating landfill disposition and reducing associated costs. ~~Landfilling~~ Use of landfills was deemed an unacceptable long-term option.

The team ~~prioritized and~~ explored several alternate methods and established priority. For the short term, monitor reuse/refurbishment/resale was the identified alternative. Working in conjunction with the company's PDCs a sorting process was ~~implemented~~ established. Those monitors in good working order were earmarked for internal ~~usage~~ use, charitable donations or resale to equipment brokers.

For the long term, monochrome product recycling into a higher or lower level glass product and lead extraction from glass was identified as an appropriate alternative.

Work is currently underway with a glass manufacturer and preprocess company (a company that disassembles the CRT/VDT unit and cleans all the metal coatings of the interior glass tube) to develop a monochrome CRT/VDT recycling process that will allow the glass component to be recycled to a higher or lower-end glass product.

RESULTS

- Pilot project for CRT/VDT disassembly and treatment ****(is this cleaning of metal coatings, i.e., getting the lead out of the interior glass tube???)**** completed.
- Pilot project to reprocess glass into a **** higher or lower level glass products -- define these in layman's terms ***** completed.
- Based on the results of these pilots, a solution for monochrome CRT/VDT recycling is targeted for Q2, FY91.

FUTURE PLANS

The initial focus of the CRT/VDT recycling program is aimed at the monochrome product. This is due to the consistency across the industry of monochrome glass. The chemistry of color glass varies widely. Testing for color tube will commence after the monochrome tube process have been proven out in volume.

What's happening up til Q2, FY91 when the monochrome solution will be instituted? What I'm looking for is to expand the future section with a little more substance on what we are doing between now and Q2, FY91.**

- Added benefits of the Energy Investment Program and Rebate Programs include decreased dependency on other energy sources, such as oil and decreased production of harmful byproducts, such as carbon dioxide. In decreasing energy consumption by (kilowatt hours) the need of approximately

  consumption by 18,725,000 kilowatt hours

  30,000 barrels of oil is eliminated, and approximately 300,000,000 pounds of carbon dioxide are not produced.

  31,000,000 pounds of

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program particularly in the areas of implementing energy management programs in all Digital facilities, and the testing of new energy management products and technologies. The program's overall goal is to have no growth in energy usage and where possible reduce current usage.

Specific projects include xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.

- implementation of a Basic Energy Management Program to ensure that all facilities meet a minimum energy management standard

In addition, efforts to educate our employees about home and work energy-efficient practices will be expanded.

(2) Method of Improve ~~equipment~~ efficiency of computer & room air conditioning to decrease consumption
modification of existing system

(3) Problem
lightening exterior
reduce
increase effic
reduce to or where eliminate perimeter when adequate day lighting is available

(4)

ENERGY MANAGEMENT PROGRAM

CHALLENGE

Digital facilities spend approximately $150,000,000 worldwide (stronger if in kilowatt hours and if just a U.S. figure since we do not have Europe or GIA examples) for energy annually. The primary source of this energy is electricity (used for lighting, computers, air conditioning, motors, pumps, etc.) with smaller amounts of natural gas and fuel oil providing energy for heating.

For several years energy conservation has been a key issue not only in the United States, but also around the globe. More and more scientific evidence supports the negative impact on the environment of burning fossil fuels. In addition, the costs of those fuels have continued to rise. Businesses and individuals alike need to improve efficiency and decrease fuel usage.

SOLUTION

Digital has had an energy management program in place since 1972. The program's continuing goal is to eliminate waste and make cost-effective use of energy resources. Specific projects include, but are not limited to:

- Installation of energy management systems in 42 U.S. Digital facilities. These systems employ cost-effective energy technology such as high efficiency lighting systems, environmental control systems, heat exchangers and power factor correction equipment.

- Participation in load management programs sponsored by utility companies. Load management programs work to reduce consumption, thereby reduce the need to generate more electricity.

- In conjunction with utility companies, the development and implementation of cost-effective rebate programs.

- Conduct pilot programs in Digital facilities, such as the high-efficiency, dimable fluorescent light fixture project, to test new energy management products and technologies.

- Offer an annual two-day energy management workshop/seminar for Digital Facilities management to exchange the latest information on energy management techniques and equipment.

- Institute an Energy Investment Program that provides funding to Digital facilities to implement energy management programs.

- Co-sponsor visits by local utility companies to Digital facilities to make energy conservation presentations to employees. The presentations provide information on energy-efficient hardware for the home, home energy audits procedures and examples of energy saving projects that can be implemented in the home.

RESULTS

- Energy Investment Program projects implemented are currently saving 12,900,000 kilowatts of electricity (annually???). Examples of implemented projects include a lighting upgrade program at Digital's Phoenix, Arizona facility that (what's the benefit from an environmental perspective, i.e., decreased usage by xx kilowatts per year), installation of an energy management system at Digital's Springfield, Massachusetts facility that (again benefit in terms of energy savings) and the upgrade of an air compressor system at Digital's Andover facility that reduced (again benefit in terms of energy savings).

- Participation in a Rebate Program with Massachusetts Electric utility that provides rebates for energy management projects has yielded a savings of 5,825,000 kilowatts of electricity (annually ???).

- Test results from the high-efficiency, dimable fluroescent light fixture pilot program indicate a cut in energy consumption by 60% is achievable with the added benefit of the elimination of glare in the workplace environment.

- Added benefits of the Energy Investment Program and Rebate Programs include decreased dependency on other energy sources, such as oil and decreased production of harmful byproducts, such as carbon dioxide. In decreasing energy consumption by (kilowatt hours) the need of approximately 30,000 barrels of oil is eliminated, and approximately 300,000,000 pounds of carbon dioxide are not produced.

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program particularly in the areas of implementing energy management programs in all Digital facilities, and the testing of new energy management products and technologies. The program's overall goal is to have no growth in energy usage and where possible reduce current usage.

Specific projects include xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.

In addition, efforts to educate our employees about home and work energy-efficient practices will be expanded.

RESULTS

o Energy Investment Program projects implemented are currently saving $1,030,000 annually ****(any figures on decreased usage or energy savings???? -- I'm looking for the environmental angle here)

savings of 12,900,000 Kwhs of electricity
savings of 21,500 barrels of oil
did NOT produce 21,500,000 pounds of CO2 (10,750 tons)
did NOT produce 310,000 pounds of SO2 (155 tons)
did NOT produce 64,500 pounds of NOX (32 tons)

Any specific projects that came out of these -- how about a couple of them???*****

a lighting upgrade project in Phoenix cost $127,400 and had a payback of 1.25 years. an Andover air compressor upgrade cost $108,369 and had a payback of 1.51 years. an energy management system in Springfield cost $250,000 and had a payback of 1.65 years. Energy saving projects continue to return savings every year....

o Participation in a Rebate Program with Massachusetts Electric utility that provides rebates for energy management projects has yielded a savings of $466,000 annually ****(again any figures on energy saved???)*****.

savings of 5,825,000 Kwh of eleectricity
savings of 9,708 barrels of oil
did NOT produce 9,708,000 pounds of CO2 (4,854 tons)
did NOT produce 135,900 pounds of SO2 (68 tons)
did NOT produce 29,125 pounds of NOX (14.6 tons)

*****Any specific technology we did a pilot project with that yielded great results?????****

need claification

o ** If you haven't guessed yet I am looking for specific or general success stories for the results section ****

CFC PROGRAM

PROBLEM

Scientific evidence has strongly indicated that chloroflurocarbons (CFCs) are destroying the protective ozone layer that shields the earth from harmful ultraviolet radiation. Like most computer and electronics companies Digital uses CFCs as a cleaning solvent in its manufacturing processes.

Digital is currently faced with a major challenge to reduce its worldwide usage of CFCs by 85% by the year 1995. This goal is consistent with the worldwide phase-out efforts driven by the Montreal Protocol (an international treaty, ratified in 1987 by 24 nations including the United States, that calls for a cut in the production and consumption of CFCs to xx% by the year 19xx).

SOLUTION

For several years Digital has been working with other electronics companies on the CFC problem. → SPECIFIC PROJECTS ~~AND~~ INCLUDE, BUT ARE NOT LIMITED TO In 1986, Digital chaired a CFC Task Force established by the American Electronics Association (AEA) Environmental Committee. The Task Force worked with the U.S. State Department and the U.S. Environmental Protection Agency to formulate the U.S. positions that were later used in the development of the Montreal Protocol.

In June of 1988, Digital instituted a worldwide CFC Policy to "reduce immediately, and where possible, to eliminate the company's use of CFCs." This policy represents a company-wide commitment to do everything possible to eliminate the use of CFCs within Digital. Concurrently, a CFC Task Force composed of representatives from the major users within Digital was formed to coordinate implementation of the phase-out policy.

Individual Digital employees also have played visible roles both as initiators of research and development activities and as advisors to public policy forums. For example, Leo Lambert, who spearheaded the transition in Digital ten years ago to water-based cleaning systems for printed circuit board modules, currently is an advisor to the United Nations Environment Programme.

Research and development activities based on Mr. Lambert's seminal work on water-based cleaning systems continue, and currently are targeted at understanding how to apply this process to other types of manufacturing processes that use CFC solvents.

Most recently, Digital joined the Industry Cooperative for Ozone Layer Protection (ICOLP). The cooperative is a joint venture between the U.S. Environmental Protection Agency and several multinational companies. Its purpose is to exchange information and technology for the worldwide reduction of CFC usage in the electronics industry.

RESULTS

- Developed a water-based cleaning process to replace the use of CFC cleaning solvents in the manufacture of surface-mount printed circuit board modules, and offered process specifications to ICOLP to distribute free of charge to the electronics industry.
- Reeduced CFC-usage by 50% in 1989 at storage manufacturing facility in Kaufbeuren, Germany by the installation of recycling system. Sister facility in Colorado Springs is in the process of installing the same system resulting in similar decrease.
- SHREWSBURY xxx facility in Massachusetts 100% CFC-free in 1990.
- Use of CFC-processed packaging will be phased out as of month, year.
- The use of halon as a fire suppressant is being replaced by carbon dioxide where possible.
- The practice of releasing halon during equipment testing has been discontinued.
- Annual total data -- if there is a sizable decrease

FUTURE PLANS

Digital's goal is to eliminate CFC usage from its manufacturing facilities by 19xx. Initially, the company focused on establishing good maintenance procedures and recycling processes. Future efforts will focus on increased research and development on alternatives.

CFC usage presents an ongoing problem that will not be solved quickly or easily. Although CFC elimination is a high priority for Digital, CFCs are used for many different purposes and their total elimination will not occur immediately. The development of non-CFC products and the design of new processes that do not

require CFCs will take time and will require extensive investment.

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills.

Landfills as a disposal method, are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, and are projected to rise to approximately $500 per ton by the mid-90s.

SOLUTION

Digital instituted a Plastics Recycling Project early in 19xx. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives have been established.

In the short term, an objective to eliminate the current plastics inventory was established. Working with suppliers, a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic is then ground up and sold on the open market.

In the interim period, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This would enable future processing of the material.

For the long term, efforts are currently in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in product devlopment work.

RESULTS

- Disposal of 100,000 pounds in (calendar year Q4, FY90) of plastic through the decomination process instead of using landfills. Can we project this to what the savings will be in a year??
- Reduction of current plastic inventory by 25% through purchase and installation of a granulator at the company's northeast PDC.
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into test samples of a product that are currently being evaluated. It is anticipated that the company will soon be able to specify recycled resins as acceptable for the manufacture of products.

FUTURE PLANS

Research and development funding has been appropriated in several areas for use during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins, the effect of multiple recylcing on resin characteristics, and the development and testing of new applications for recycled resins.

In addition, to enhance sorting techniques, a process to imprint plastics identifiers on each product part is being piloted. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces costs. Full scale implementation of this process in Qx, FYxx -- calendar year.

RECYCLING

PAPER PROGRAM

CHALLENGE

Approximately 15 million pounds of paper worldwide is disposed of by Digital's employees per year. As an environmentally-responsible company, sending this waste to already overburdened landfills or incinerators are unacceptable options. The short-and-long term effects on the environment are too high.

SOLUTION

Digital has had paper recycling programs in many of its facilities for the past ten years. Implementation of a corporate-wide paper recovery/recycling program is currently underway. The program advocates use of a "full circle" approach, supporting the Reduce, Reuse and Recycle tenets of good waste management practices.

The circle's starting point is to provide employees with dual wastebaskets, which enables source separation at the point of generation. Next, source reduction practices, such as making two-sided copies, routing documents to appropriate parties versus each party getting its own copy or changing printer options to eliminate burst and feeder pages are encouraged through employee communication and education projects.

Lastly, completing the circle, Digital encourages the specification and purchase of recycled products, such as basic office supply paper -- bond, copy, fax, note, computer -- or file folders/hanging folders, trash bins, rest room supplies, etc.

RESULTS

- Year-to-date figures for 1990 indicate that approximately xxxx pounds of paper have been recycled, yielding a year to date cost avoidance of approximately $xxxxxxx
- 80% of U.S. Digital Manufacturing sites have implemented paper recycling programs
- Re-routing the amount of paper disposed of by Digital employees yearly from the waste stream and into the recycling stream could conserve approximately 25,000 cubic yards of landfill space

FUTURE PL@NS

The goal of the corporate-wide paper recovery/recycling program is to have 100% compliance throughout all Digital facilities by 19xx. To achieve this goal, a cross-functional committee was formed earlier this year to integrate current and future paper recycling programs throughout the company.

The committee's focus is identify, develop and implement programs to reduce paper consumption through source reduction and to incorporate the purchasing of goods made from recycled waste paper into daily purchasing decisions.

RECYCLING PROGRAM

CATHODE RAY TUBES (CRTs)

CHALLENGE

Cathode Ray Tubes (a key component of Video Display Terminals) are commonly disposed of throughout the industry in hazardous waste landfills. Increasing environmental concerns in conjunction with more stringent regulatory standards indicate the limitation of these types of landfills. Environmentally sound alternative methods need to be identified and implemented.

SOLUTION

A project team was formed to develop a short and long term strategy for the disposal of CRTs. The project goal was to identify methods for recycling CRTs ~~/VDTs~~ thereby eliminating landfill disposition and reducing associated costs. Use of landfills was deemed an unacceptable long-term option.

The team explored several alternate methods and established prorities. One of the top priorities identified was to explore video display terminal (VDT) reuse/refurbishment/resale. Working in conjunction with the company's Property Disposition Centers a sorting process ~~was~~ IS BEING established. Those VDTs in good working order ~~were~~ will be earmarked for internal use, charitable donations or possible resale to equipment brokers.

For the long term, monochrome CRT recycling into a higher-or-lower level glass product ~~and lead extraction from glass~~ ~~were~~ was identified as one appropriate alternatives.

Work is currently underway with a glass manufacturer and preprocess company (a company ~~that disassembles the CRT and~~ that cleans ~~all the metal coatings of the~~ the interior glass tube) to develop a monochrome CRT recycling process that will allow the glass component to be recycled to a higher-or lower-end glass product.

RESULTS

- Pilot project for CRT disassembly and treatment (remove all contaminants and coatings) completed.
- Pilot project to reprocess glass into a higher-or lower-level glass products completed.
- Based on the results of these pilots, a solution for monochrome CRT recycling is targeted for ~~(Q2, FY91~~ end of calendar year).

FUTURE PLANS

The initial focus of the CRT recycling program is aimed at the monochrome product. This is due to the consistency across the industry of monochrome glass. The chemistry of color glass varies widely. Testing for color glass will commence after the monochrome glass process have been proven out in volume.

PROPERTY DISPOSITION CENTERS

CHALLENGE

In 1989 Digital Equipment Corporation processed approximately 18 million pounds of excess and obsolete equipment (that included furniture, outdated software, field returns, customer trade-ins and returns, capital equipment and excess or obsolete inventories). The process that was used at that time needed standardization.

SOLUTION

A small group was formed to analyze the existing process and provide recommendations for improvement. The team evaluated alternatives to identify a process that would insure security of material through the disposition process and would through disassembly to the commodity (component) level, use an environmentally proactive approach to the get maximum amount of recovery dollars.

The group's recommendation was to legitimize the disposition business with Profit and Loss ownership and responsibility. To accomplish this it was determined that all disposition operations would be consolidated into two key centers, and that all equipment deemed excess, obsolete or idle would be processed only

through the Property Disposition Centers (PDCs). Digital currently owns and operates two PDCs in the United States -- one in the northeast and one in the west. The Centers provide for the disposition of excess and obsolete equipment from all U.S. area operations, and when applicable from other geographies.

RESULTS

- Consolidation of disposition locations from five using over one million square feet of space into two using approximately 75,000 square feet.
- In FY-91 it is projected that the U.S. Area PDC's will breakeven or possibly return a small profit to DEC, which is a significant turnaround from the 3.8 million dollar loss incurred in FY-90.
- There have also been some major intiatives to exploit and improve the environmental and proprietary information aspects of managing the disposition excess and obsolete equipment, such as:

  -- Vendor qualification procedures developed
  -- Environmental Health and Safety procedures developed
  -- Self-audit and Certification process established
  -- Disposal goals of 50% reduction in 5 years
  -- Revised Security procedures to meet the current business environment.

FUTURE PLANS

- PDC become commodity vs. regional focus for excess and obsolete equipment.
- Market PDC functionality to external customers.
- 100% goal for resale/usage of Digital generic components.
- Resale of DEC equipment with low risk/impact to current market strategies.
- Be a profit center for the corporation.
- Active collaboration with Design Engineering for cradle to grave strategy.

MATERIAL IDENTIFICATION PROGRAM

CHALLENGE

Digital Equipment Corporation has a range of efforts in place to address specific component or product recycling and reclamation issues. These efforts would be more effective if a consistent well-defined process for identifying the composition and disposition of the company's products and components were in place.

SOLUTION

Establish a project team to develop a process and an information technology system/tool that would improve the company's ability to reuse, recycle, resell or reclaim its products and components in an environmentally sound and cost-effective manner.

This system will enable the user's community to improve storage, handling and transportation processes by providing additional product composition and disposition information. Availability of this information will minimize the liability associated with hazardous and proprietary materials throughout the product life cycle. Digital will be able to optimize recycling, reuse, resale and reclamation opportunites and where appropriate locally dispose of selected parts, thereby reducing transportation costs. The system will contain specific Digital Part information.

Preliminary data element fields identified are the part description, class, component name, used on option, material composition, disposition, proprietary and hazardous status, etc. Access to this information will not only facilitate the disposal of these components, but will assist the design engineering community in selecting materials which support waste management and environmental, health and safety practices.

The proposed user community consists of Customer Services, Distribution, Product Disassembly Centers, Design Engineering, and Manufacturing.

RESULTS

The source and user communities have been interviewed to evaluate the viability of such a tool within their businesses. The benefits and concerns have been captured. In partnership with these organizations plans are being developed for the integration of required process changes into existing processes, standards and business applications which meet the overall project objectives. Digital remains committed to designing products with minimal environmental impact and establishing the processes and tools which will position us as an industry leader in the area of waste management.

FUTURE PLANS

CONCLUSION

Digital's Waste Management Program is a natural extension of the company's commitment to protecting and preserving the environment. That commitment is a key cosideration in the company's basic operating procedures and is demonstrated through the programs and projects targeted at reducing, recycling and reusing materials while sustaining the company's economic growth.

The Waste Management goals are ambitious, and the results are by no means guaranteed. What the program aims for is steady, consistent progress. Some years may be better than others, and the program's first 18 months has been most promising.

Given these challenges, Digital has set several Waste Management priorities for the next five years. These include:

- Continued research and development work on and investment in recycling processes for materials that present an environmental risk. The current efforts on plastics and glass recycling are examples.
- The application and development of information technology tools to assist in the development and implementation of a consistent process for the composition and disposition of the company's products and components.
- Addressing the disposition of a product at the design stage rather than at end-of-life by identifying and incorporating waste streams into design and manufacturing processes.
- Integrating waste management practices into every employee's day-to-day work environment. Employee participation at all levels and all geographies in which the company does business.
- Setting waste management standards that are environmentally-sound, as well as consistent with current

worldwide environmental laws and regulations.

- Work with industry groups, other companies and suppliers to encourage the adoption of waste management and pollution prevention practices that will have a positive impact on the world environment.

To learn more about Digital's Waste Management Program and the programs described in this report write the Waste Management Program Office, address.

BOARD & HENDRIC "COMPONENT PRO

CHALLENGE OF COMPONENTS

REMOVAL OF COMPONENTS FROM SCRAP BOARDS
COST EFFECTIVE

RECOMMENDED BEFORE WE CHOP BOARDS PROCESS FOR PRECIOUS METALS

OLD APPROACH — SOME OF STUFF

STREAMLINE PROCESS TO MAKE CERTAIN WE KNEW WHERE OUR BOARDS/DISASSEMBLY WERE GOING; MAKE CERTAIN IT WAS ENVIRONMENTALLY SOUND; SOME COULD BE SLUDGE, SOME COULD GO INTO LANDFILLS

1) COORDINATE RECYCLE, REUSE ↑ RECLAIM COMPONENTS & BOARDS, SUCH ALL ELEMENTS OF THE THAT ENVIRON , COST SA

SOLUTION HENDRIC

A GROUP LOOKED AT SEVERAL ALTERNATIVES. ESTABLISH PRIORITIES. PROGRAM REMOVE USED COMPONENTS FROM THE BOARDS. 1ST STAGE COMPONENTS WERE SOLD ON SECONDARY MARKET, WERE USED BY TOY & TV MFG.

2nd STAGE → WHAT WAS LEFT OF COMP. & WAS BOARD → RECLAMATION OF METALS.

3rd STAGE → DUAL MARKING ALL OTHER THAN DEC PROPRIETARY HENDRIC USED
SYSTEM WAS SET UP TO
→ SELL ON SECONDARY MKT.

4th STAGE → TAKE ALL EXCESS ? & OBSOLETE ? NEW COMPONENTS AND SELL ON SECONDARY MARKET

RATHER THAN SCRAPING & LANDFILLING.

RESULTS:

(1) PROCESS WILL TAKE CARE OF TOUGH BOARDS THAT DIDN'T BEFORE
10 to 15 COMPONENTS → @ 1 MIL
AREN'T GOING TO LANDFILL OR AREN'T BEING INCINERATED

(2) OPP. TO RECYCLE SEVERAL MILLION EXCESS OR NEW COMPONENTS THRU THE SYSTEM

(3) COST SAVINGS TO COMPANY

FUTURE PLANS

(1) NXT ACTIVITIES SECURITY ASPECT BOARDS LEAVING
ALTERNATIVE METHOD OF DISASSEMBLY HAS BOARD
ENVIRONMENTAL REMOVE COMPONENTS

CURRENT WAYS → (1) SOLDER USED TO GET THEM OFF
PUTS MORE LEAD ON BOARD

(2) HEAT WAY WHICH WAS SLOW ≠
ENERGY INEFFICIENT

(3) HOT AIR WHICH COULD
OVERHEAT & COULD HAVE
SAFETY + LEAD FUME PROB.
W/ OPERATOR

(3)

(2) SAFELY END. OVER HIGH QUALITY DECS PROPRIETARY COMP. ~~to~~ FOR REUSE

FASTER REPAIR & WORK

(3) RESEARCH IN TOTAL METAL RECOVERY ON BOARDS.

INSTEAD OF INCINERATE — CHEMICALLY ~~OXIDIZE~~ PROCESS

STRONGER OVER WHERE OUR METALS ARE ACTUALLY JOINED

REPROCESS VS. RECYCLE

(4) '86 OLDER BOARDS HAVE MORE GOLD IN FINGERS; CHANGE PROCESS TO CUT FINGERS OFF & PROCESS THEM SEPARATELY

10/31
DRAFT.

John C. Letter

In the past, Digital has focused mainly on the disposal of waste to meet or exceed the environmental standards set by governments. Today, Digital is focusing on source reduction -- don't build it or buy it, if it isn't needed.

Over the years, many Digital sites have done an excellent job of dealing with waste and environmental issues, but their activities were largely separate and local. My role, as the Corporate Waste Management program manager, is to integrate these activities, and identify new areas of opportunity for source reduction.

The complexity of doing business on a global basis coupled with the current quantity and diversity of government regulations has now reached the point where a tighter degree of coordination is needed to ensure Digital is doing the right thing in all its locations throughout the world.

One of the biggest challenges in achieving this integration is promoting behavior change about waste throughout the corporation. The program must build awareness, concern, processes and habits that make waste management a routine part of Digital's business operations.

Fortunately, Digital has many enthusiastic employees, who are working for site waste reduction programs. I receive notes daily from empolyees asking, "How can I help?" How successful Digital is at channeling this momentum, and, truly achieving widespread employee involvement, will be a key ingredient to the successful implementation of the program.

When people start becoming more aware of waste across an entire site -- in terms of office supplies, lights and power -- waste management can truly be seen as good business practice with tangible evidence of cost avoidance at the bottom line.

WE SHALL CONSERVE NATURAL RESOURCES,

A key tenet of Digital's seven-point environmental policy is xxxxx. It is part of Digital's EarthVision -- the goals the company's seeks to achieve environmentally. EarthVision is the waste management program's vision to implement a world-class waste management program. It will take time and a lot of hard work, but Digital is prepared to invest in the future benefits such programs will provide to the global environment.

INTRODUCTION

Digital is committed to taking an active role in addressing environmental issues. To this end, Digital instituted a formal Waste Management Program early in 1988. The program, under the direction of senior management, seeks to reduce the generation of waste at the source in our worldwide facilities through cost-effective changes in process technologies and materials usage.

Early in 1988 when the program began, Digital disposed of an estimated 125 million pounds of waste per year, at a cost of approximately $500 million. At that time, the company set a overall goal to reduce disposal volumes by 50% in five years.

Digital is proud to report that in the program's first 18 months, it has made significant progress toward this end. On the following pages the waste management programs and projects that have enabled Digital to effectively reduce waste through environmentally sound practices are described.

Digital is particularly proud of the work it has done in the areas of packaging, energy management and plastics recycling. With these programs the company has been able not only to reduce current usage, but to look ahead and initiate proactive research and development work that will decrease and, in certain areas eliminate, usage of materials that would otherwise end up in

already overburdened landfills.

Central to the waste management program is its integration into the company's business practices. Waste management is good business. It can only be achieved if it is integrated into the worldwide environment of all employees.

Throughout Digital, many committed employees both within and outside the environmental area, have worked to implement not only the formal waste reduction programs described on the following pages, but their own innovative projects.

It is perhaps the program's biggest challenge to foster such employee involvement. Only when every employee considers new ways to reduce waste, recycle materials and substitute safer materials for those that could pose a potential environmental risk can Digital truly achieve a world-class waste management program.

Although Digital has made major inroads on several key waste management issues, there is still much work to be done. In many areas the answers are not easy. They will require time and extensive investment. Digital accepts this challenge, and through its employees, will continue to build on its waste management accomplishments to fulfill it, long-term commitment to responsible environmental citizenship.

PACKAGING PROGRAM

CHALLENGE

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations represents approximately 27,000 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, among Digital and its trading partners on packaging related expenses (manufacturing and distribution process, materials and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective.

SOLUTION

Digital initiated a corporate-wide Packaging Waste Management Program to reduce waste and its resulting cost in 1989. The program addresses all aspects of packaging related material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

In several areas, such as source reduction, the program complements existing efforts, and provides a forum for packaging engineering organizations, as well as individuals within manufacturing and distribution sites, to transfer and promote new ideas and information on reusable packaging and alternative materials.

Specific projects fall into several categories that include, but are not limited to: packaging recycling, resuable packaging, source reduction, elimination of Chlorofluorocarbon(CFC)-processed packaging materials, alternative materials usage.

RESULTS

- Reduced dependency on landfills, to date deterred xxxx tons of packaging waste being sent to landfills
- Reduction of overall packaging costs of $1.6 million to date (perhaps use specific examples here to beef it up)
- Reduced the use of CFC-processed packaging materials (again some specific examples to beef it up)

FUTURE PLANS

The overall goal of the packaging program is eliminate 27,000 tons of packaging disposal and thereby decrease packaging costs by $30 million by 1993. To achieve this goal, several strategies are currently being implemented.

These include mobilizing employees in geographic areas and sites to support and begin execution of program during (Calendar year -- no one except Digital knows about our fiscal year), establishing a pilot project for outbound reusable packaging and expanding packaging effort in (Calendar Year FY92-93) through aggressive goal setting and ownership by business units.

PACKAGING PROGRAM

CHALLENGE

For Digital and its trading partners, packaging waste from manufacturing, sales and service operations represents approximately 27,000 tons of disposable material annually. In addition, it is estimated that $150 million is spent annually, among Digital and its trading partners on packaging related expenses (manufacturing and distribution process, materials and disposal). This not only contributes to the current landfill crisis the United States is facing, but also is costly from a financial perspective. [shouldn't Europe and GIA be acknowledged?]

Since I don't have

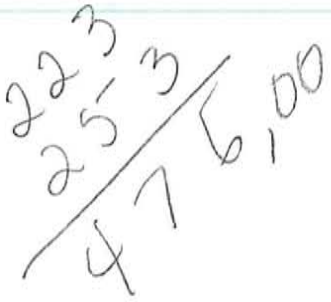
SOLUTION

Digital initiated a corporate-wide Packaging Waste Management Program to reduce packaging waste and its resulting cost in 1989. The program addresses all aspects of packaging related material movement (inbound from suppliers, within a facility, intersite between Digital facilities and outbound to customers).

Manage

The program is composed of projects focused on several areas of packaging waste management. It complements existing efforts by providing a forum for packaging engineering organizations, as well as individuals within manufacturing and distribution sites, to transfer and promote new ideas and information.

expanding packaging effort in (Calendar Year FY92-93) through aggressive goal setting and ownership by business units.



Specific projects fall into several categories that include, but are not limited to: packaging recycling, resuable packaging, source reduction, elimination of Chlorofluorocarbon(CFC)-processed packaging materials, alternative materials usage.

RESULTS

- Reduced dependency on landfills, to date the rate of packaging waste from Digital operations going to land fills has been reduced by 250 tons annually. ~~The long term goal in this area is to reduce this rate by 5400 tons by 1994.~~

- Package design for source reduction has been implemented in several cases. Examples include 66% reduction in cube or cubic space occupied by the packaged product, on the redesign of a mouse package; 13% reduction in cube on the redesign of a workstation package; 26% reduction in cube on the redesign of a disk drive package.

- Projects to reduce the amount of dunnage material used in non-engineered packages have resulted in a reduction of 150,000 [this number needs to be varified]cubic feet of dunnage per year. The type of dunnage used has also been changed in our major operations from flowable plastic dunnage to a more recyclable/easier to dispose of material, wadded paper.

- Reduction of overall packaging costs of $1.6 million to date. Specific projects contributing to this total include a reusable bulk disk/tape drive package for shipping products between our Springfield, Ma. and Westfield, Ma. facilities ($223,000 annual savings), a reusable package for shipping multichip units or MCU's between our Cupertino, Ca. and Burlington, Vt. facilities ($253,000 annual savings), and a redesign of an individual disk drive pack for material and cost reduction ($120,000 annual savings).

- Reduced the use of CFC-processed packaging materials. All molded foam materials and foamed-in-place packaging materials have been converted to non CFC-processed for Digital manufactured products since the beginning of the program. Our goal is to eliminate all CFC-processed packaging materials from Digital manufactured products by 1/1/91.

FUTURE PLANS

The overall goal of the packaging program is eliminate 5,400 tons of packaging disposal and thereby decrease packaging costs by $30 million by 1993. To achieve this goal, several strategies are currently being implemented.

These include mobilizing employees in geographic areas and sites to support and begin execution of program during 1991, establishing a pilot project for outbound reusable packaging and

ENERGY MANAGEMENT PROGRAM

CHALLENGE

Digital facilities spend approximately $150,000,000 worldwide for energy annually. The primary source of this energy is electricity (used for lighting, computers, air conditioning, motors, pumps, etc.) with smaller amounts of natural gas and fuel oil providing energy for heating.

For several years energy conservation has been a key issue not only in the United States, but also around the globe. More and more scientific evidence supports the negative impact on the environment of burning fossil fuels. In addition, the costs of those fuels have continued to rise. Businesses and individuals alike need to improve efficiency and decrease fuel usage.

SOLUTION

Digital has had an energy management program in place since 1972. The program's continuing goal is to eliminate waste and make cost-effective use of energy resources. Specific projects include, but are not limited to:

- Installation of energy management systems in 42 U.S. Digital facilities. These systems employ cost-effective energy technology such as high efficiency lighting systems, environmental control systems, heat exchangers and power factor correction equipment.

- Participation in load management programs sponsored by utility companies. Load management programs work to reduce consumption, thereby reduce the need to generate more electricity.

- In conjunction with utility companies, the development and implementation of cost-effective rebate programs.

- Conduct pilot programs in Digital facilities, such as the high-efficiency, dimable fluorescent light fixture project, to test new energy management products and technologies.

- Offer an annual two-day energy management workshop/seminar for Digital Facilities management to exchange the latest information on energy management techniques and equipment.

- Institute an Energy Investment Program that provides funding to Digital facilities to implement energy management programs.

- Co-sponsor visits by local utility companies to Digital facilities to make energy conservation presentations to employees. The presentations provide information on energy-efficient hardware for the home, home energy audits procedures and examples of energy saving projects that can be implemented in the home.

RESULTS

- 12,900,000 kilowatt hours of electricity is saved annually from Energy Investment Program projects. Specific examples of projects include:

  -- a lighting upgrade program at Digital's Phoenix, Arizona facility that decreased electricity usage by 1,400,000 kilowatt hours annually

  -- installation of an energy management system at Digital's Springfield, Massachusetts facility that reduced usage by 2,160,000 kilowatt hours annually

  -- upgrade of an air compressor system at Digital's Andover facility that reduced usage by 1,280,000 kilowatt hours annually.

- 5,825,000 kilowatt hours of electricity is saved annually through participation in the Massachusetts Electric Utility Rebate Program.

- Test results from the high-efficiency, dimable fluroescent light fixture pilot program indicate a reduction of 60% energy consumption is achievable by employing these fixtures. In addition, the fixture eliminate glare in the workplace

rewrite

environment.

rewrite

- By decreasing electricity consumption by approximately 18,725,000 kilowatt hours annually, the need for 30,000 barrels of oil is eliminated and approximately 31,000 pounds of carbon dioxide are not produced.

FUTURE PLANS

Although solid inroads have been made, efforts will continue to expand the program particularly in the areas of implementing energy management programs in all Digital facilities, and the testing of new energy management products and technologies. The program's overall goal is to have no growth in energy usage and where possible reduce current usage.

Specific projects include expanding use of high-efficiency lighting systems throughout all Digital facilities; testing alternative methods for running overall facility air conditioning units and modification of existing computer room air conditioning systems to decrease energy consumption; reduction and where possible elimination of facility perimeter lighting when adequate day lighting is available.

In addition, efforts to educate our employees about home and work energy-efficient practices will be expanded.

CFC PROGRAM

PROBLEM

Scientific evidence has strongly indicated that chloroflurocarbons (CFCs) are destroying the protective ozone layer that shields the earth from harmful ultraviolet radiation. Like most computer and electronics companies Digital uses CFCs as a cleaning solvent in its manufacturing processes.

Digital is currently faced with a major challenge to reduce its worldwide usage of CFCs by 85% by the year 1995. This goal is consistent with the worldwide phase-out efforts driven by the Montreal Protocol (an international treaty, ratified in 1987 by 24 nations including the United States, that calls for a cut in the production and consumption of CFCs to xx% by the year 19xx).

SOLUTION

For several years Digital has been working with other electronics companies on the CFC problem. Specific projects include, but are not limited to:

In 1986, Digital chaired a CFC Task Force established by the American Electronics Association (AEA) Environmental Committee. The Task Force worked with the U.S. State Department and the U.S. Environmental Protection Agency to formulate the U.S. positions

that were later used in the development of the Montreal Protocol.

In June of 1988, Digital instituted a worldwide CFC Policy to "reduce immediately, and where possible, to eliminate the company's use of CFCs." This policy represents a company-wide commitment to do everything possible to eliminate the use of CFCs within Digital. Concurrently, a CFC Task Force composed of representatives from the major users within Digital was formed to coordinate implementation of the phase-out policy.

Individual Digital employees also have played visible roles both as initiators of research and development activities and as advisors to public policy forums. For example, Leo Lambert, who spearheaded the transition in Digital ten years ago to water-based cleaning systems for printed circuit board modules, currently is an advisor to the United Nations Environment Programme.

Research and development activities based on Mr. Lambert's seminal work on water-based cleaning systems continue, and currently are targeted at understanding how to apply this process to other types of manufacturing processes that use CFC solvents.

Most recently, Digital joined the Industry Cooperative for Ozone Layer Protection (ICOLP). The cooperative is a joint venture between the U.S. Environmental Protection Agency and several multinational companies. Its purpose is to exchange information

and technology for the worldwide reduction of CFC usage in the electronics industry.

RESULTS

- Developed a water-based cleaning process to replace the use of CFC cleaning solvents in the manufacture of surface-mount printed circuit board modules, and offered process specifications to ICOLP to distribute free of charge to the electronics industry.
- Reeduced CFC-usage by 50% in 1989 at storage manufacturing facility in Kaufbeuren, Germany by the installation of recycling system. Sister facility in Colorado Springs is in the process of installing the same system resulting in similar decrease.
- SHREWSBURY xxx facility in Massachusetts 100% CFC-free in 1990.
- Use of CFC-processed packaging will be phased out as of ~~month, year.~~ the end of this year.
- The use of halon as a fire suppressant is being replaced by carbon dioxide where possible.
- The practice of releasing halon during equipment testing has been discontinued.
- ~~Annual total data -- if there is a sizable decrease~~

FUTURE PLANS

rewrite

Digital's goal is to eliminate CFC usage from its manufacturing facilities by 19xx. Initially, the company focused on establishing good maintenance procedures and recycling processes. Future efforts will focus on increased research and development on alternatives.

CFC usage presents an ongoing problem that will not be solved quickly or easily. Although CFC elimination is a high priority for Digital, CFCs are used for many different purposes and their

total elimination will not occur immediately. The development of non-CFC products and the design of new processes that do not require CFCs will take time and will require extensive investment.

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills.

Landfills as a disposal method, are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, and are projected to rise to approximately ~~$500~~ $350-500 per ton by the mid-90s.

SOLUTION

Digital instituted a Plastics Recycling Project early in ~~19xx~~ 1990. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives have been established.

In the short term, an objective to eliminate the current plastics inventory was established. Working with ~~suppliers~~ our major, a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic is then ground up and sold on the open market.

In the interim period, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This would enable future processing of the material.

For the long term, efforts are currently in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in product devlopment work.

RESULTS

- Disposal of 100,000 pounds in (calendar year Q4, FY90) of plastic through the decomination process instead of using landfills. Can we project this to what the savings will be in a year??
- Reduction of current plastic inventory by 25% through purchase and installation of a granulator at the company's northeast PDC.
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into test samples of a product that are currently being evaluated. It is anticipated that the company will soon be able to specify recycled resins as acceptable for the manufacture of products.

FUTURE PLANS

Research and development funding has been appropriated in several areas for use during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins, the effect of multiple recylcing on resin characteristics, and the development and testing of new applications for recycled resins.

In addition, to enhance sorting techniques, a process to imprint plastics identifiers on each product part is being piloted. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces costs. Full scale implementation of this process in Qx, FYxx -- calendar year.

RECYCLING PROGRAM

CATHODE RAY TUBES (CRTs)

CHALLENGE

Cathode Ray Tubes (a key component of Video Display Terminals) are commonly disposed of throughout the industry in hazardous waste landfills. Increasing environmental concerns in conjunction with more stringent regulatory standards indicate the limitation of these types of landfills. Environmentally sound alternative methods need to be identified and implemented.

SOLUTION

A project team was formed to develop a short and long term strategy for the disposal of CRTs. The project goal was to identify methods for recycling CRTs thereby eliminating landfill disposition and reducing associated costs. Use of landfills was deemed an unacceptable long-term option.

The team explored several alternate methods and established prorities. One of the top priorities identified was to explore video display terminal (VDT) reuse/refurbishment/resale. Working in conjunction with the company's Property Disposition Centers a sorting process is being established. Those VDTs in good working order will be earmarked for internal use, charitable donations or possible resale to equipment

brokers.

For the long term, monochrome CRT recycling into a higher-or-lower level glass product was identified as an appropriate alternative.

Work is currently underway with a glass manufacturer and preprocess company (a company that cleans the interior glass tube) to develop a monochrome CRT recycling process that will allow the glass component to be recycled to a higher-or lower-end glass product.

RESULTS

- Pilot project for CRT disassembly and treatment (cleaning of the interior glass tube) completed.
- Pilot project to reprocess glass into a higher-or lower-level glass products completed.
- Based on the results of these pilots, a solution for monochrome CRT recycling is targeted for the end of the calendar year.

FUTURE PLANS

The initial focus of the CRT recycling program is aimed at the monochrome product. This is due to the consistency across the industry of monochrome glass. The chemistry of color glass varies widely. Testing for color glass will commence after the monochrome glass process have been proven out in volume.

FACSIMILE COVER SHEET

DIGITAL EQUIPMENT CORPORATION
CORPORATE ENVIRONMENTAL, HEALTH & SAFETY (EHS)
150 COULTER DRIVE
CONCORD, MA 01742-2190

DELIVER TO: Ann Fullerton

COMPANY: _____

TELEPHONE: _____

FAX NUMBER: 493-4173

NUMBER OF PAGES TO FOLLOW COVER SHEET: 5

FAX FROM: Joe Collentro

DATE: 11/2/90

FAX NUMBER: DTN 251-1181, OR (508) 264-1181

CONTACT NUMBER: DTN 251-1611, OR (508) 264-1611

COMMENTS: _____

223-4173
223-4173

Kris - Please FAX this to Ann Fullerton @ 508-443-4123

Ann - Note correction.

RECYCLING PROGRAM

PLASTICS

CHALLENGE

On an annual basis, Digital Equipment Corporation uses approximately 12 million pounds of plastic resin in its products, and disposes of 1.5 million pounds of plastic parts to non-hazardous landfills. Landfills as a disposal method are quickly becoming obsolete with local, State and Federal regulations becoming increasingly stringent around what can be buried in them. Currently, disposal costs range from $50 to $75 per ton in the United States, and are projected to rise to approximately ~~$500~~ $250 - $500 per ton by the mid-90's.

SOLUTION

Digital instituted a Plastic's Recycling Project early in ~~19xx~~ 1990. The overall goal of the project is to develop a plastics recycling and reclamation process that will reduce the company's dependency on landfills and subsequently reduce all associated costs.

Given the scope of this effort, short, intermediate and long term objectives were established.

In the short term, an objective to eliminate the current plastics inventory was established. Working with ~~suppliers~~ our major supplier a process was set up to decontaminate the plastic by removing metal, paper and foam. The plastic ~~is then~~ was ground up and ~~sold on the open market.~~ Shipped to the Suppliers Recycling group.

For the intermediate term, an objective to transfer and integrate this process into Digital's northeast disassembly operation (PDC) was set. This would enable future processing of the material.

For the long term, efforts are currently in process with several companies and universities to develop an efficient, cost-effective process that would yield a resin suitable for reuse in ~~product development work.~~ current products, and other product development areas.

RESULTS

- Disposal of 100,000 pounds in Q4, FY90 of plastic through the decomination process instead of using landfills.
- Reduction of current plastic inventory by 4:1 ~~through purchase and installation of a granulator at the company's northeast PDC~~ by three a granulation process.
- Development of prototype methods to reclaim plastic parts as resins for use in product development. Several lots of this reclaimed material have been molded into to test samples of a product and are currently being evaluated. It is anticipated that the company will soon be able to specify ~~recycled resins as~~ a mixture of recycled and new resins acceptable for the manufacture of products.

FUTURE PLANS

Research and development funding has been appropriated in several areas during the next twelve months. Targeted areas include studies on the effect of fillers and additive finishes on recycled resins; the effect of multiple recylcing on resin characteristics; and the development and testing of new applications for recycled resins.

In addition two other projects have been scheduled. The first is the imprinting of a plastics identifier on each product part to enhance sorting techniques. Dividing the plastics waste stream by type of material quickly identifies reuse elements and reduces costs.

****Dave this isn't a plastics future plan, but an overall corporate initiative, isn't it??? Don't you think it belongs in the conclusion with future plans ????***** Anna - yes important

The second and most strategically important project is the manufacturing for disassembly and recyclability program. The goal of the project is identify product waste streams and incorporate these factors into the company's product design and manufacturing processes. The project seeks to address the disposition of a product at the design stage versus its end of life. A PDU has agreed to develop a new product using this strategy.

Ann see corrections

RECYCLING PROGRAM

BOARD/COMPONENT PROGRAM

CHALLENGE

Printed circuit boards and the components embedded on them are commonly disposed of throughout the industry through a variety of methods. Many end up in landfills and incerators. A disassembly method that focussed on recycling, reuse and reclamation would decrease dependency on landfills and provide a more environmentally efficient approach.

SOLUTION

A project team was assigned to assess Digital's current printed circuit board disassembly and disposal process. The group identified several methods that were currently being used and developed a an approach to standardize environmentally efficient programs.

Initial efforts focussed on generic components derived from the disassemby process. Recycling through secondary markets was identified as the preferred method and an implementation process was instituted.

Next, once disassembled, the group identified reclamation as an effective approach to disposing of the boards. The third stage of the program addressed excess and obsolete new components. Based on

results of the generic component recycling program, recycling through secondary markets was identified as preferable to scraping or landfilling.

RESULTS

- By the end of the year Digital will have disposed of 100,000 printed circuit boards through recycling of generic components and reclamation efforts instead of shipping them to a landfill or incinerator.
- Several hundred thousand excess or obsolete new components will be recycled through secondary markets.
- Cost savings of approximately $10,000 by decreasing usage of standard landfill and incerator disposal processes.

FUTURE PLANS

Future programs for printed circuit board dissasembly and disposal are focussed on research for alternative methods for the disassembly process, and recovery of all metals from the boards.

In addition, Digital is pursuing the reuse internally of its proprietary components to further implement environmentally efficient practices.

RECYCLING

PAPER PROGRAM

CHALLENGE

Approximately 15 million pounds of paper worldwide is disposed of by Digital's employees per year. As an environmentally-responsible company, sending this waste to already overburdened landfills or incinerators are unacceptable options. The short-and-long term effects on the environment are too high.

SOLUTION

Digital has had paper recycling programs in many of its facilities for the past ten years. Implementation of a corporate-wide paper recovery/recycling program is currently underway. The program advocates use of a "full circle" approach, supporting the Reduce, Reuse and Recycle tenets of good waste management practices.

The circle's starting point is to provide employees with dual wastebaskets, which enables source separation at the point of generation. Next, source reduction practices, such as making two-sided copies, routing documents to appropriate parties versus each party getting its own copy or changing printer options to eliminate burst and feeder pages are encouraged through employee communication and education projects.

Lastly, completing the circle, Digital encourages the specification and purchase of recycled products, such as basic office supply paper (-- bond, copy, fax, note, computer --), or file folders/hanging folders, trash bins, rest room supplies, etc.

RESULTS

- Year-to-date figures for 1990 indicate that approximately xxxx pounds of paper have been recycled, yielding a year to date cost avoidance of approximately $xxxxxxx
- 80% of U.S. Digital Manufacturing sites have implemented paper recycling programs
- Re-routing the amount of paper disposed of by Digital employees yearly from the waste stream and into the recycling stream could conserve approximately 25,000 cubic yards of landfill space

FUTURE PL@NS

The goal of the corporate-wide paper recovery/recycling program is to have 100% compliance throughout all Digital facilities by 19xx. To achieve this goal, a cross-functional committee was formed earlier this year to integrate current and future paper recycling programs throughout the company.

The committee's focus is identify, develop and implement programs to reduce paper consumption through source reduction and to incorporate the purchasing of goods made from recycled waste paper into daily purchasing decisions.

RECYCLING PROGRAM

BOARD/COMPONENT PROGRAM

CHALLENGE

Printed circuit boards and the components embedded on them are commonly disposed of throughout the industry through a variety of methods. Many end up in landfills and incerators. A disassembly method that focussed on recycling, reuse and reclamation would decrease dependency on landfills and provide a more environmentally efficient approach.

SOLUTION

A project team was assigned to assess Digital's current printed circuit board disassembly and disposal process. The group identified several methods that were currently being used and developed a an approach to standardize environmentally efficient programs.

Initial efforts focussed on generic components derived from the disassemby process. Recycling through secondary markets was identified as the preferred method and an implementation process was instituted.

Next, once disassembled, the group identified reclamation as an effective approach to disposing of the boards. The third stage of the program addressed excess and obsolete new components. Based on

results of the generic component recycling program, recycling through secondary markets was identified as preferable to scraping or landfilling.

RESULTS

- By the end of the year Digital will have disposed of 100,000 printed circuit boards through recycling of generic components and reclamation efforts instead of shipping them to a landfill or incinerator.
- Several hundred thousand excess or obsolete new components will be recycled through secondary markets.
- Cost savings of approximately $xxx by decreasing usage of standard landfill and incerator disposal processes.

FUTURE PLANS

Future programs for printed circuit board dissasembly and disposal are focussed on research for alternative methods for the disassembly process, and recovery of all metals from the boards.

In addition, Digital is pursuing the reuse of its proprietary components to further implement environmentally efficient practices.

PROPERTY DISPOSITION CENTERS

CHALLENGE

In 1989 Digital Equipment Corporation processed approximately 18 million pounds of excess and obsolete equipment (that included furniture, outdated software, field returns, customer trade-ins and returns, capital equipment and excess or obsolete inventories). The process that was used at that time needed standardization.

SOLUTION

A small group was formed to analyze the existing process and provide recommendations for improvement. The team evaluated alternatives to identify a process that would insure security of material through the disposition process and would through disassembly to the commodity (component) level, use an environmentally proactive approach to the get maximum amount of recovery dollars.

The group's recommendation was to legitimize the disposition business with Profit and Loss ownership and responsibility. To accomplish this it was determined that all disposition operations would be consolidated into two key centers, and that all equipment deemed excess, obsolete or idle would be processed only

through the Property Disposition Centers (PDCs). Digital currently owns and operates two PDCs in the United States -- one in the northeast and one in the west. The Centers provide for the disposition of excess and obsolete equipment from all U.S. area operations, and when applicable from other geographies.

RESULTS

- Consolidation of disposition locations from five using over one million square feet of space into two using approximately 75,000 square feet.
- In FY-91 it is projected that the U.S. Area PDC's will breakeven or possibly return a small profit to DEC, which is a significant turnaround from the 3.8 million dollar loss incurred in FY-90.
- There have also been some major intiatives to exploit and improve the environmental and proprietary information aspects of managing the disposition excess and obsolete equipment, such as:

  -- Vendor qualification procedures developed
  -- Environmental Health and Safety procedures developed
  -- Self-audit and Certification process established
  -- Disposal goals of 50% reduction in 5 years
  -- Revised Security procedures to meet the current business environment.

FUTURE PLANS

- PDC become commodity vs. regional focus for excess and obsolete equipment.
- Market PDC functionality to external customers.
- 100% goal for resale/usage of Digital generic components.
- Resale of DEC equipment with low risk/impact to current market strategies.
- Be a profit center for the corporation.
- Active collaboration with Design Engineering for cradle to grave strategy.

Preliminary data element fields identified are the part description, class, component name, used on option, material composition, disposition, proprietary and hazardous status, etc. Access to this information will not only facilitate the disposal of these components, but will assist the design engineering community in selecting materials which support waste management and environmental, health and safety practices.

The proposed user community consists of Customer Services, Distribution, Product Disassembly Centers, Design Engineering, and Manufacturing.

~~RESULTS~~ FUTURE PLANS

The source and user communities have been interviewed to evaluate the viability of such a tool within their businesses. The benefits and concerns have been captured. In partnership with these organizations plans are being developed for the integration of required process changes into existing processes, standards and business applications which meet the overall project objectives. Digital remains committed to designing products with minimal environmental impact and establishing the processes and tools which will position us as an industry leader in the area of waste management.

NEW PRODUCT

MATERIAL IDENTIFICATION PROGRAM

CHALLENGE

Digital Equipment Corporation has a range of efforts in place to address specific component or product recycling and reclamation issues. These efforts would be more effective if a consistent well-defined process for identifying the composition and disposition of the company's products and components were in place.

SOLUTION

Establish a project team to develop a process and an information technology system/tool that would improve the company's ability to reuse, recycle, resell or reclaim its products and components in an environmentally sound and cost-effective manner.

This system will enable the user's community to improve storage, handling and transportation processes by providing additional product composition and disposition information. Availability of this information will minimize the liability associated with hazardous and proprietary materials throughout the product life cycle. Digital will be able to optimize recycling, reuse, resale and reclamation opportunites and where appropriate locally dispose of selected parts, thereby reducing transportation costs. The system will contain specific Digital Part information.

FUTURE PLANS

CONCLUSION

Digital's Waste Management Program is a natural extension of the company's commitment to protecting and preserving the environment. That commitment is a key cosideration in the company's basic operating procedures and is demonstrated through the programs and projects targeted at reducing, recycling and reusing materials while sustaining the company's economic growth.

The Waste Management goals are ambitious, and the results are by no means guaranteed. What the program aims for is steady, consistent progress. Some years may be better than others, and the program's first 18 months has been most promising.

Given these challenges, Digital has set several Waste Management priorities for the next five years. These include:

- Continued research and development work on and investment in recycling processes for materials that present an environmental risk. The current efforts on plastics and glass recycling are examples.
- The application and development of information technology tools to assist in the development and implementation of a consistent process for the composition and disposition of the company's products and components.
- Addressing the disposition of a product at the design stage rather than at end-of-life by identifying and incorporating waste streams into design and manufacturing processes.
- Integrating waste management practices into every employee's day-to-day work environment. Employee participation at all levels and all geographies in which the company does business.
- Setting waste management standards that are environmentally-sound, as well as consistent with current

worldwide environmental laws and regulations.

- Work with industry groups, other companies and suppliers to encourage the adoption of waste management and pollution prevention practices that will have a positive impact on the world environment.

To learn more about Digital's Waste Management Program and the programs described in this report write the Waste Management Program Office, address.