

SEP 29 1998  
Sta. 37

ENGINEERING DATA TRANSMITTAL

Page 1 of 1  
1. EDT 625367

2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) INTEGRATION systems FDH		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: HANDI 2000 INTEGRATION		6. Design Authority/Design Agent/Cog. Engr.: DAWN E. ADAMS		7. Purchase Order No.: N/A	
8. Originator Remarks: FOR RELEASE				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: N/A	
				12. Major Assm. Dwg. No.: N/A	
11. Receiver Remarks:				11A. Design Baseline Document? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: N/A	

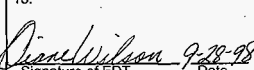
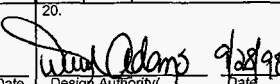
15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-2858	N/A	REV 0	BACKUP AND RECOVERY PLAN FOR HANDI 2000 BUSINESS MANAGEMENT SYSTEMS <sup>2</sup>	N/A	2	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION  
(See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
	1	Design Authority	DAWN E. ADAMS		G1-21	3		DIANE WILSON			G1-21
		Design Agent				3		DOE/RL Reading Room			H2-53
		Cog. Eng.				3		Hanford Technical Library			P8-55
		Cog. Mgr.				3		Central Files			B1-07
		QA									
		Safety									
		Env.									

18.  Signature of EDT Originator Date 9-28-98	19. N/A Authorized Representative for Receiving Organization Date	20.  Design Authority/Cognizant Manager Date 9-28-98	21. DOE APPROVAL (if required) Ctrl No. _____ <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
---	---	---	--

# BACKUP AND RECOVERY PLAN FOR HANDI 2000 BUSINESS MANAGEMENT SYSTEM

Dawn E. Adams, FDH  
2355 Stevens MSN G1-21  
Richland, WA 99352  
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 625367 UC: 900  
Org Code: SL610000 Charge Code: HANF6800  
B&R Code: EW7001000 Total Pages: 28 13  
*ja*

Key Words: HANDI 2000, BUSINESS MANAGEMENT, BACKUP AND RECOVERY PLAN  
H2K, BMS, PEOPLESOFT, PASSPORT

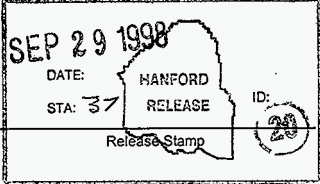
Abstract: The purpose of this Backup and Recovery Plan (BRP) is to provide guidelines for backup and recovery requirements of HANDI 2000 file systems and databases. The methods used to accomplish this are not new. The intent is to use the existing processes and procedures where possible to meet the needs of the HANDI 2000 System.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: Document Control Services, P.O. Box 950, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

PassPort is a trademark of Indus Corporation.  
PeopleSoft is a trademark of PeopleSoft Corporation.  
HP is a trademark of Hewlett Packard.  
UNIX is a trademark licensed exclusively through X/Open CO. Ltd.

*V.L. Burkland* 9/29/98  
Release Approval Date



Approved For Public Release

**BACKUP AND RECOVERY PLAN**  
**FOR**  
**HANDI 2000**  
**BUSINESS MANAGEMENT SYSTEM**

Prepared by: Thomas J. Kuyper, LMSI Software Engineer

Prepared for: Fluor Daniel Hanford


Approved by:

  
\_\_\_\_\_  
Steve Manley, FDH/CIO Manager


9/29/98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Robert E. Gates, H2K Project Director

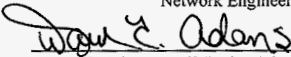
9/29/98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
J. D. Harris, LMSI Operations and Support Manager

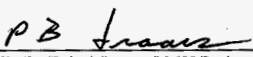
9-28-98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Dale E. McElroy, LMSI Telecommunications and  
Network Engineering Manager

9/28/98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Dawn E. Adams, BMS Project Manager

9/28/98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Phillip B. (Brian) Isaacs, LMSI Project Manager

9/28/98  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Kristina Whiteaker, INDUS Project Manager

9/28/98  
\_\_\_\_\_  
Date

---

**TABLE OF CONTENTS**

<b>1</b>	<b>INTRODUCTION.....</b>	<b>3</b>
1.1	OVERVIEW.....	3
1.2	PURPOSE.....	3
1.3	SCOPE.....	3
1.4	ACRONYM DEFINITIONS.....	4
1.5	TERMS.....	4
1.6	REFERENCES.....	4
<b>2</b>	<b>ROLES AND RESPONSIBILITIES.....</b>	<b>5</b>
2.1	PROCESS OWNER.....	5
2.2	SOFTWARE ENGINEER.....	5
2.3	CENTRAL COMPUTER SYSTEMS MANAGEMENT.....	5
2.4	NETWORK INFRASTRUCTURE SYSTEMS.....	5
<b>3</b>	<b>HANDI 2000 BACKUP/RECOVERY REQUIREMENTS.....</b>	<b>6</b>
3.1	BACKUP REQUIREMENTS.....	6
3.2	RECOVERY REQUIREMENTS.....	6
<b>4</b>	<b>OPERATIONAL BACKUP / RECOVERY PROCESS.....</b>	<b>7</b>
4.1	HANDI 2000 BACKUP PROCESS.....	7
4.2	HANDI 2000 RECOVERY PROCESS.....	7
<b>5</b>	<b>BACKUP / RECOVERY MAINTENANCE PROCESS.....</b>	<b>9</b>
5.1	HANDI 2000 BACKUP PROCESS.....	9
5.2	HANDI 2000 RECOVERY PROCESS INITIATION.....	9
<b>6</b>	<b>APPENDIX.....</b>	<b>10</b>
6.1	APPENDIX A EQUIPMENT LIST.....	11
6.2	APPENDIX B BACKUP FORM.....	12

---

## 1 INTRODUCTION

The Hanford Data Integration 2000 (HANDI 2000) Project will result in an integrated and comprehensive set of functional applications containing core information necessary to support the Project Hanford Management Contract. It is based on a Commercial-Off-The-Shelf (COTS) product solution with commercially proven business processes.

The PassPort (PP) software is an integrated application for Accounts Payable, Contract Management, Inventory Management, Chemical Management (MSDS) and Purchasing. The PeopleSoft (PS) software is an integrated application for General Ledger, Project Costing, Human Resources, Payroll, Benefits, and Training. The implementation of this set of products, as the first deliverable of the HANDI 2000 Project, is referred to as Business Management System (BMS) and Chemical Management.

### 1.1 OVERVIEW

The BMS and Chemical Management production implementation and the server environment is comprised of two types of platforms. The PassPort Supply and the PeopleSoft Financials reside on UNIX servers and the PeopleSoft Human Resources and Payroll reside on Microsoft NT servers. Because of the wide scope and the requirements of the COTS products to run in various environments, backup and recovery responsibilities are divided between two groups in Technical Operations. The Central Computer Systems Management group provides support for the UNIX/NT Backup Data Center, and the Network Infrastructure Systems group provides support for the NT Application Server Backup outside the Data Center. This is reflected in the separate descriptions of backup and recovery in the Section 4, Operational Backup / Recovery Process.

Information and integrated system data for determining the backup and recovery process is identified from the Fluor Daniel Hanford (FDH) Risk Assessment Plan, Contingency Plan, and the Records Inventory Disposition Schedules (RIDS), and Backup Form for HANDI 2000 BMS.

Reference the following procedures:

*HNF-PRO-214, Records Inventory Disposition Schedules*  
*HNF-PRO-311, Functional Security Requirements/Application Development*  
*HNF-PRO-592, Unclassified Computer Security Management Control Process*  
*HNF-PRO-596, Certifying Sensitive or Essential Computer Applications*  
*HNF-PRO-597, Preparing Contingency Plans and Disaster Recovery Plans*  
*Appendix B*

### 1.2 PURPOSE

The purpose of this Backup and Recovery Plan (BRP) is to provide guidelines for backup and recovery requirements of HANDI 2000 file systems and databases. The methods used to accomplish this are not new. The intent is to use the existing processes and procedures where possible to meet the needs of the HANDI 2000 System.

### 1.3 SCOPE

The systems covered in this procedure are all of the UNIX and Microsoft NT servers associated with the HANDI 2000 BMS. *Reference Appendix A, Equipment List.*

#### 1.4 ACRONYM DEFINITIONS

Acronym	Definition
BMS	Business Management System
BRP	Backup and Recovery Plan
COTS	Commercial off the Shelf
CTS	Computer Technical Support
CUBS	Central UNIX Backup Server
FDH	Fluor Daniel Hanford
HANDI 2000	Hanford Data Integration (Year 2000 compliant)
LMSI	Lockheed Martin Services, Incorporated
NT	New Technology
PP	PassPort
PS	PeopleSoft
RIDS	Records Inventory Disposition Schedules
MSDS	Material Safety Data Sheets

#### 1.5 TERMS

Backup Services: All processes associated with regular backup of computer systems. Including full backups, incremental backups, differential backups and the recovery of lost or destroyed files.

Data Center: The 339A computer center facility, located in the 300 Area.

Differential Backup: A backup of all files changed from the previous full backup or differential backup.

Full Backup: A backup of the entire computer file system. Usually done on a weekly basis.

Incremental Backup: A backup of all files changed from the last full backup.

Off Premise Storage: A backup repository located in a different building and area from the computers being backed up.

Process Owner: The Fluor Daniel Manager responsible for the computer system or their representative.

Technical System Administrator: System Administrator or Database Administrator or their representative.

#### 1.6 REFERENCES

HNF-PRO-214	Records Inventory Disposition Schedules
HNF-PRO-311	Functional Security Requirements/Application Development
HNF-PRO-592	Unclassified Computer Security Management Control Process
HNF-PRO-596	Certifying Sensitive or Essential Computer Applications
HNF-PRO-597	Preparing Contingency Plans and Disaster Recovery Plans
APPENDIX A	Equipment List
APPENDIX B	Backup Form

---

## **2 ROLES AND RESPONSIBILITIES**

### **2.1 PROCESS OWNER**

- Arrange for and ensure the adequacy of the system backups
- Prepare the HANDI 2000 Risk Assessment Plan, Contingency Plan, and the Records Inventory Disposition Schedules (RIDS), and Backup Form, with assistance from the Software Engineer and/or Database Administrator
- Using the Backup Form, notify the appropriate Software Engineer of backup requirement changes
- Process Owner or designee will contact Customer Technical Support and/or Software Engineer in the event of a user workstation system failure or network failure to request system or file recovery

### **2.2 SOFTWARE ENGINEER**

- Assist Process Owner in preparation of the HANDI 2000 Risk Assessment Plan, Contingency Plan, and the Records Inventory Disposition Schedules (RIDS), and Backup Form
- Determine Technical Operations department responsible for backup and recovery functions
- Forward recovery requests to appropriate Technical Operations department
- Updates APPENDIX A, Equipment List as required

### **2.3 CENTRAL COMPUTER SYSTEMS MANAGEMENT**

- Provide backup services for all systems in the Data Center
- Provide recovery services for all systems in the Data Center
- Annually test backup and recovery functions for the Data Center

### **2.4 NETWORK INFRASTRUCTURE SYSTEMS**

- Provide backup services for all application servers outside the Data Center
- Provide recovery services for all application servers outside the Data Center
- Annually test backup and recovery functions for application servers

---

### 3 HANDI 2000 BACKUP/RECOVERY REQUIREMENTS

All computers specified in the BRP will be backed up to tape according to the business and technical requirements for each computer. In the event of unrecoverable, extreme server system failure, it may be necessary to recover the latest tape backup or dump to disk, causing a loss of any updating that had occurred since the backup.

#### 3.1 BACKUP REQUIREMENTS

- Weekly full backup of entire computer file system
- Daily incremental or differential backup of all new or modified files.
- Backup tapes are saved for a minimum of 28 days
- Weekly off premise backup tape storage for minimum of 1 cycle

#### 3.2 RECOVERY REQUIREMENTS

- Restore a system, application, or file to any approved hardware platform that meets minimum hardware and operating system requirements for that system, application, or file within the allowable down time identified in the HANDI 2000 Contingency Plan.



---

## 4 OPERATIONAL BACKUP / RECOVERY PROCESS

### 4.1 HANDI 2000 BACKUP PROCESS

#### 4.1.1 UNIX/NT Backup in Data Center

The Central UNIX Backup Server (CUBS) provides automated client backup services for the Unix and NT systems supported by the Central Computer Systems Management group. Legato NetWorker software provides the backup, recovery and archival functions for the production Unix and NT systems. The Legato system runs on a HP 9000/460 Unix server located in the 339A building. The backups are stored on tape utilizing a StorageTek 9714 automated tape library unit.

NetWorker is based on a client / server architecture. The NetWorker server initiates backups, receives files from clients, saves them to media, and keeps track of each file that was backed up. The NetWorker client software reads the files on the client and sends them to the NetWorker server for backup.

Weekly a full backup is done which backs up all files including those that have not been cataloged or changed. Incremental backups are performed daily. This backs up any file that was cataloged or modified since the last backup. Backup tapes are saved for 90 days. Clone copies of the weekly full backups are maintained off-site in the 2261 building for all systems co-located with the Central Unix Backup Server. There are 12 weeks of clones. These systems include but are not limited to the Passport / PeopleSoft development system (H2KD1), and the Passport / PeopleSoft production system (H2KP1). After the retention period expires tapes will be eligible for re-use.

The backups for each client are scheduled and automatically performed by the Legato software. NetWorker backs up each client system across the network according to its backup schedule. Schedules can be very simple or very sophisticated, depending on the needs of a particular environment. All clients can share the same schedule, or each client can have its own, unique schedule. The results of the backups are sent to the Legato administrator and to the System Administrators at the end of each backup session. Any problems encountered during the backup can be identified and corrected. The System Administrator can also backup selected files manually from the graphical interface or from a script on the client.

Backup of the databases is done using scripts on the client system. The script will bring down the database, dump the database to a flat file, bring the database backup up, and initiate the backup of the database dump file.

Legato also provides the capability to perform file archival. Archival differs from backup in that only a single copy of the file or directory is stored on the system. In backups there can be multiple versions of a file in the system at one time. There is no time limit on how long an archived file is maintained on the system. Archival of files will follow standard RID's process. The customer will maintain ownership of all data that is archived.

#### 4.1.2 NT Application Server Backup outside the Data Center

The Network Infrastructure Systems group supports the automated backups of each NT file server, which is performed each night Monday through Saturday. Media retention periods will last a minimum of 28 days after backup. After the retention period expires tapes will be eligible for re-use.

The nightly backup session will start automatically. One FULL backup will be performed on each file server once per week and INCREMENTAL backups the remaining days of the week. One week worth of off-site tape backups will be temporarily moved to another location. All backup media is stored at an offsite location.

### 4.2 HANDI 2000 RECOVERY PROCESS

#### 4.2.1 UNIX/NT Recovery in Data Center

The Technical Operations System Administrator can perform recovery of damaged or lost files. This is done from the client system using a graphical interface. Selected files will be retrieved from backup tapes and stored on the client server.

#### 4.2.2 NT Application Server Recovery outside the Data Center

Users requesting restores will call the Central Help Desk, Customer Technical Support at 376-1234. A Computer Technical Support (CTS) consultant will be able to remotely attach & load the tape media in order to perform the requested data restore.

## **5 BACKUP / RECOVERY MAINTENANCE PROCESS**

### **5.1 HANDI 2000 BACKUP PROCESS**

- To initiate the backup of a new server or application, or modify, or remove an existing server or application, the Process Owner or designee will complete their portion of the Backup Form (Appendix B) and will submit it to the appropriate Software Engineer.
- The Software Engineer will complete their portion of the Backup Form and forward to the appropriate Technical Operations department.
- Technical Operations will perform the requested action, complete their portion of the Backup Form and return the form to the Requestor. If appropriate the Technical Operations department will retain a copy of the completed form.

### **5.2 HANDI 2000 RECOVERY PROCESS INITIATION**

- The Process Owner or designee will contact Customer Technical Support and/or Software Engineer in the event of a user workstation system failure or network failure to request system or file recovery
- CTS or Software Engineer will determine the appropriate Technical Operations department to call for recovery and notify them of the need.
- CTS or the Technical Operations department will notify the process owner of the recovery status.

## 6 APPENDIX

6.1 APPENDIX A EQUIPMENT LIST

EQUIPMENT LIST

SYSTEM	ADDRESS	LOCATION	RESPONSIBLE DEPARTMENT	OPERATING SYSTEM
Production UNIX Server	H2KP1	Data Center (339A)	Computer Systems Management	UNIX
Non-Production UNIX Server	H2KD1	Data Center (339A)	Computer Systems Management	UNIX
CA Unicenter Production Server	APEMC01	Data Center (339A)	Network Infrastructure Systems	NT
200E P3 Application Server	APP302	200E Server Room	Network Infrastructure Systems	NT
HRIS Prod DB Server	APHRPRDB	2261/102	Network Infrastructure Systems	NT
HRIS Prod Batch Perl / Process Scheduler	APHRPRD5	2261/102	Network Infrastructure Systems	NT
HRIS Prod IIS Web Server	APHRPRD3	2261/102	Network Infrastructure Systems	NT
HRIS Prod Reporting DB Server	APHRPRD4	2261/102	Network Infrastructure Systems	NT
HRIS Prod Batch Cmd Server	HRIS5	2261/102	Network Infrastructure Systems	NT
HRIS Backup DB Server	APHRTEDB	2261/102	Network Infrastructure Systems	NT
HRIS Backup Process Scheduler / Batch Perl Server / Reporting DB Server	APHRPRD3	2261/102	Network Infrastructure Systems	NT
HRIS Backup IIS Web Server	APHRPRD5	2261/102	Network Infrastructure Systems	NT
HRIS Backup Batch Cmd Server	HRIS1	2261/102	Network Infrastructure	NT
HRIS Test DB / Reporting DB Servers	HRIS3	2261/102	Network Infrastructure Systems	NT
HRIS Test Batch / Process Scheduler/ IIS Web Server	APHRTEd4	2261/102	Network Infrastructure Systems	NT
HRIS Dev DB / Reporting DB Servers	HRIS2	2261/102	Network Infrastructure Systems	NT
HRIS Dev Batch / Process Scheduler / IIS Web Server	APHRTEd3	2261/102	Network Infrastructure Systems	NT
HRIS New Releases Test Server	HRIS4	2261/102	Network Infrastructure Systems	NT
PassPort and PeopleSoft Application Server	APH2K01	2355	Network Infrastructure Systems	NT
P3 Database Server	APH2K02	2355	Network Infrastructure Systems	NT

6.2 APPENDIX B BACKUP FORM

Backup Form

**Requester Information**

Date: \_\_\_\_\_ Add System \_\_\_\_\_ Modify System \_\_\_\_\_ Remove System \_\_\_\_\_

Requester: \_\_\_\_\_ Phone: \_\_\_\_\_

Company: \_\_\_\_\_ Department: \_\_\_\_\_

System: \_\_\_\_\_ Approved By: \_\_\_\_\_

Special Requirements: \_\_\_\_\_

**Software Engineer**

Date Received: \_\_\_\_\_ Received By: \_\_\_\_\_

System Location: \_\_\_\_\_ Responsible Department: \_\_\_\_\_

Special Considerations: \_\_\_\_\_

Contact Phone: \_\_\_\_\_

Action	Result	Initial	Date
_____	_____	_____	_____

Update Equipment List

**Technical Operations**

Department: \_\_\_\_\_ System Name: \_\_\_\_\_

Location: \_\_\_\_\_ System Administrator: \_\_\_\_\_

Day Phone: \_\_\_\_\_

After Hours: \_\_\_\_\_

Additional Information:

**System Added / Modified / Removed to / from Automated Backup and Tested**

Date Completed: \_\_\_\_\_ Completed By: \_\_\_\_\_

Return to Requester