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Distribution	TWRS Safety Programs Engineering Support	Date 10/10/94
Project Title/Work Order		EDT No. 160144
Work Plan for Transition of Hydrogen Mitigation Test Project Data Acquisition and Control System (DACS-1)		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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ENGINEERING DATA TRANSMITTAL

Page 1 of

1. EDT 160144

2. To: (Receiving Organization) Special Projects		3. From: (Originating Organization) Test Engineering		4. Related EDT No.: N/A							
5. Proj./Prog./Dept./Div.: Hydrogen Mitigation Test Project		6. Cog. Engr.: J. McClees		7. Purchase Order No.: N/A							
8. Originator Remarks: The attached work plan is submitted for approval and release.				9. Equip./Component No.: N/A							
				10. System/Bldg./Facility: 241-SY-101							
11. Receiver Remarks:				12. Major Assm. Dwg. No.: N/A							
				13. Permit/Permit Application No.: N/A							
				14. Required Response Date: 10/9/94							
15. DATA TRANSMITTED											
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition			
1	WHC-SD-WM-WP-264	ALL	0	Work Plan for Transition of Hydrogen Mitigation Test Project Data Acquisition and Control System (DACS-1)	3SQ N/A 3-24-94	1/2					
16. KEY											
Impact Level (F)		Reason for Transmittal (G)			Disposition (H) & (I)						
1, 2, 3, or 4 (see MRP 5.43)		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						
(G)	(H)	17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)						(G)	(H)		
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog. Eng. J. McClees		10/3/94	R1-51	J. J. Klos		10/3/94	T4-07	1	1
1	1	Cog. Mgr. R. W. Reed		10/3/94	R1-51	W. J. Lehman		10/3/94	S0-09	3/2/95	
1	2	QA M. L. McElroy		10/3/94	S1-57	J. W. Lentsch		10/3/94	H5-09	1	1
1	1	Safety L. S. Krogsrud		10/3/94	R3-08	F. A. Plasting		10/3/94	H5-10	1	1
1		R. E. Bauer		10/3/94	L6-37	D. L. Sherrett		10/3/94	H1-53	1	1
1	1	C. E. Hanson		10/3/94	H5-09	H. Hoida		10/3/94	LANL	1	
3		D. G. Hert		10/3/94	T4-07	R. A. Huckfeldt		10/3/94	R3-54	3/2/95	
18. R. W. Truitt Signature of EDT Originator		19. C. E. Hanson Authorized Representative Date for Receiving Organization		20. R. W. Reed Cognizant/Project Engineer's Manager		21. DOE APPROVAL (if required) Ltr. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments					

BD-7400-172-2 (07/91) SEF097

BD-7400-172-1 (07/91)

RELEASE AUTHORIZATION

**Document
Number:**

WHC-SD-WM-WP-264, Revision 0

Document Title:

Work Plan for Transition of SY-101 Hydrogen
Mitigation Test Project Data Acquisition and Control
System (DACS-1)

Release Date:

10/12/94

* * * * *

This document was reviewed following the
procedures described in WHC-CM-3-4 and is:

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(Signature)

M. N. Boston

10/12/94

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SUPPORTING DOCUMENT		1. Total Pages 31
2. Title WORK PLAN FOR TRANSITION OF SY-101 HYDROGEN MITIGATION TEST PROJECT DATA ACQUISITION AND CONTROL SYSTEM (DACS-1)		3. Number WHC-SD-WM-WP-264
		4. Rev No. 0
5. Key Words DACS DACS-1 Transition SY-101 Hydrogen Mitigation 101-SY Test Project Control Mixing Pump EG&G		6. Author Name: R. W. Truitt Signature Organization/Charge Code 22910/N2B91
7. Abstract This document defines tasks, deliverables, costs, schedules, and organizations responsible for transferring DACS operating and maintenance responsibility from Los Alamos National Laboratory to Westinghouse Hanford Company.		
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WORK PLAN FOR TRANSITION
OF SY-101 HYDROGEN MITIGATION TEST PROJECT
DATA ACQUISITION AND CONTROL SYSTEM (DACS-1)

J.. McClees
R. W. Truitt

July 1994

MASTER

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**WORK PLAN FOR TRANSITION
OF SY-101 HYDROGEN MITIGATION TEST PROJECT
DATA ACQUISITION AND CONTROL SYSTEM (DACS-1)**

1.0 INTRODUCTION

1.1 OBJECTIVE

The purpose of this effort is to transfer operating and maintenance responsibility for the 241-SY-101 Data Acquisition and Control System (DACS-1) from Los Alamos National Laboratory (LANL)/EG&G to Westinghouse Hanford Company (WHC). This work plan defines the tasks required for a successful turnover. It identifies DACS-1 transition, deliverables, responsible organizations and individuals, interfaces, cost, and schedule. The transition plan will discuss all required hardware, software, documentation, maintenance, operations, and training for use at Hanford Waste Tank 241-SY-101. The transfer of responsibilities for DACS-1 to WHC is contingent on final approval of applicable Acceptance for Beneficial Use (ABU) documentation by Waste Tank Operations.

1.2 SUMMARY DESCRIPTION

1.2.1 Background

In early 1992, LANL/EG&G was tasked with providing data acquisition and control capability for support of hydrogen mitigation testing at Tank 241-SY-101. The DACS-1 trailer and associated equipment were provided per a DACS-1 functional specification prepared by LANL/EG&G on May 1, 1992. The trailer was delivered in October 1992. The DACS-1 was accepted by WHC on June 21, 1993. Westinghouse Hanford Company provided installation of all tank farm-located equipment, as well as utility connections to the trailer.

The DACS-1 was designed to provide data monitoring, display, and storage for Tank 241-SY-101. The DACS-1 also provides alarm and control of all the hydrogen mitigation testing systems, as well as ancillary systems and equipment (HVAC, UPS, etc.) required to achieve safe and reliable operation of the testing systems in the tank.

To date, LANL/EG&G has provided engineering and technician support for safe and reliable operation of the DACS-1 trailer and associated equipment.

Westinghouse Hanford Company is now tasked with assuming ownership and maintenance of the DACS-1 system from LANL/EG&G.

1.2.2 System Description

The DACS-1 is located immediately north of SY tank farm. It functions as the monitoring and control system supporting the 241-SY-101 mitigation-by-pumping project. As part of the transition, LANL/EG&G will provide a detailed DACS-1 system breakdown to be incorporated into the DACS-1 system design description. The DACS-1 has five distinct subsystems, identified below.

1) Uninterruptible Power Supply (UPS)

This includes the external UPS system and all cabling between the DACS-1 trailer and the UPS system.

2) Heating, Ventilation, and Air Conditioning (HVAC)

This includes the DACS-1 HVAC skid, associated wiring, and all flexible ducting between the DACS-1 trailer and the HVAC skid.

3) Computer Systems

This includes all Texas Microsystems CPUs, all Modicon modules (CPUs and I/O modules), the Eaton Motor Controller hardware, all Remote Supervisory Stations (RSS), associated ArcNet hardware, and all associated cabling.

4) Auxiliary Systems

This subsystem includes the DACS-1 trailer shell itself, fire protection, the video equipment, all associated strain gauge signal conditioning and recording hardware, HLAN, and any other DACS-1 related items not covered by the previous three subsystems.

5) Software

This subsystem includes all Genesis software, all Modsoft software, the Eaton Motor Controller software, and the Nicolet software.

2.0 SCOPE

This section identifies the tasks to be completed and the deliverables required to provide a systematic transition of the DACS-1 engineering and operating responsibilities from LANL/EG&G to WHC Waste Tank Operations.

2.1 LANL/EG&G SCOPE AND DELIVERABLES

Technical expertise will be provided by LANL/EG&G--supporting all phases of the transition.

The LANL/EG&G deliverables shall include:

- Develop documentation as described in Section 3.1 below.
- Support craft and operator training.
- Provide calibration information.
- Provide a detailed DACS-1 system breakdown.
- Provide as-built design, detail, and IEFD drawings; support of drawing conversion to WHC format.
- Recommend spare parts and provide respective information.
- Transfer property to WHC.

Note: Approval and agreement with this work plan by LANL/EG&G does not constitute a legal commitment, but does imply agreement to the intent of this work plan.

2.2 WHC SCOPE AND DELIVERABLES

Westinghouse Hanford Company shall lead the DACS-1 transition effort and shall provide the systematic approach and leadership required to accomplish a smooth transition. In addition, WHC will interface with LANL/EG&G to retrieve DACS-1 technical expertise, develop and/or assure that all applicable ABU documentation has been satisfactorily completed, and provide adequate operations and maintenance training to applicable personnel. Westinghouse Hanford Company shall also develop a spare parts list and all spare parts and other equipment needed to provide maintenance for the DACS-1 and supporting systems. The software deliverables shall meet WHC-CM-3-10 requirements.

The WHC deliverables, as a minimum, shall include:

- This engineering work plan with all contributors' signatures on the EDT.
- Purchase requisitions.
- Training of personnel, as required.

Software

- Computer software design description (CSDD).
- Computer software requirements specification (CSRS).
- Technical manuals.
- System configuration management plan (SCMP).
- Validation and verification plan (V&V).
- Commercial software (Genesis, Modsoft) license transfer.
- Support contracts.
- DACS-1 computer software support training.
- Internal software QA audit acceptance prior to turnover.

Hardware

- Safety equipment list.
- Operations and maintenance manuals, procedures, etc.
- Support LANL/EG&G in the preparation of (e.g., advise, review, and approve):
 - DACS-1 functional design criteria (FDC)
 - DACS-1 system design description (SDD)
 - DACS-1 construction/procurement specifications
 - DACS-1 as-built, IEFD, and applicable detail design drawings
 - Other applicable ABU documentation

2.3 ACCEPTANCE FOR BENEFICIAL USE (ABU)

The required deliverables, defined by Test Engineering and listed below, were identified per TWRS Restoration and Upgrades Desk Instruction #3, "Acceptance for Beneficial Use (ABU)," as well as per WHC policies and procedures. Remote Systems Development shall assign a responsible engineer to each of the DACS-1 subsystems (UPS, HVAC, computer systems, software, and auxiliary). These engineers shall support LANL/EG&G with the preparation of a precursory ABU for each subsystem. The WHC engineers shall ensure that the documents meet the appropriate WHC requirements and formats. All documents/drawings shall either be developed as, or converted to, retrievable WHC documents/drawings. The DACS-1 IEFD drawings shall be appended to the existing 241-SY-101 tank IEFD drawing(s).

Remote Systems Development shall ensure that an overall DACS-1 ABU is prepared, incorporating the information gathered for each DACS-1 subsystem. Some of the identified deliverables have already been turned over to WHC as required; however, the task is to verify that all required deliverables are completed.

Note: The transition is not complete until all deliverables identified herein have been provided to, and approved by, the customer (Waste Tank Operations and Test Engineering).

The following is a minimum list of deliverables required to complete the transition:

Hardware Deliverables

- DACS-1 system design description (SDD)
- DACS-1 functional design criteria (FDC)
- DACS-1 conceptual design report (CDR)
- DACS-1 safety equipment list (SEL)
- DACS-1 design, construction, and purchase specifications
- DACS-1 operation specification (e.g., OSD), as necessary
- DACS-1 IEFD drawings
- Vendor information (all DACS-1 equipment)

Software Deliverables

- Computer software requirements specification (CSRS)
- Computer software design description (CSDD)
- Technical manuals
- System configuration management plan (SCMP)
- Validation and verification plan (V&V)
- Commercial software (Genesis, Modsoft) license transfer

- Support contracts (list of current contracts, i.e., Calmax, Iconics, Eldridge Engineering)
- DACS-1 computer software support training
- Internal software QA audit acceptance prior to turnover

Operating/Maintenance Documentation

- Operation procedures
- Calibration procedures
- Maintenance procedures
- Calibration records (convert to CBRS system)
- Surveillance procedures (Ors)
- Operator and craft training

2.4 DACS-1 TRANSITION CLOSEOUT REPORT

The project will provide a closeout report for the approval of Test Engineering and Waste Tank Operations. The report will include the following subject matters and items:

- Drawing titles/numbers, VI file titles/numbers
- VI file titles/numbers
- Bibliography of supporting documents
- Applicable safety documentation
- Operating information
- Training information and records
- Maintenance/calibrations information
- Property transfer information
- Lessons learned

2.5 IMPACT LEVELS AND SAFETY CLASSIFICATIONS

The following guidelines for selection of impact levels and safety classifications apply to all documents, software, hardware, components, and systems. Impact level and safety class determinations shall be assigned per EP-1.4, MRP 5.43, and MRP 5.46. All approval designators and safety class determinations shall, at a minimum, be reviewed and approved by the DACS-1 cognizant manager, R. W. Reed (Test Engineering), or his delegate.

Development of the safety equipment list shall follow, by example, and eventually be appended to the existing document, WHC-SD-WM-SEL-026, "Double-Shell Tank Interim Safety Equipment List."

2.6 SAFETY ASSESSMENT

The DACS-1 transition effort and product documentation shall follow strict compliance with all safety controls identified in LA-UR-92-3196, "Safety Assessment for Proposed Pump Operation to Mitigate Episodic Gas Release in Tank 241-SY-101," and WHC-SD-WM-ISC-001, "Hanford Site Tank Farm Facility Interim Safety Basis."

2.7 PROCUREMENT

All materials and components that are procured by WHC shall be procured in accordance with WHC-CM-2-1. Vendor certification, in accordance with the applicable ASTM (or other) material standard, shall be required for all Impact Level 3 (or higher) purchased material and components. Vendor information (VI) and manuals shall accompany every order.

Quality assurance inspection shall be performed on all Impact Level 3 (or higher) procurements and work packages in accordance with WHC-CM-4-2. Identification and traceability shall be maintained for all critical items.

To the greatest extent possible, equipment and materials shall be ordered as "off-the-shelf" items.

3.0 ORGANIZATIONAL RESPONSIBILITIES

The task responsibilities are outlined in the following sections. Signatures on the Engineering Data Transmittal (EDT) of this document indicate agreement for the task responsibility, schedule, and estimated cost by the responsible organization. The DACS-1 transition team and the hydrogen mitigation project key personnel are outlined below with their respective responsibilities. A detailed work breakdown structure is shown in Appendix A.

Note: Due to the unstable atmosphere at tank farms, the enclosed schedule may slip. Schedule impacts and/or work scope changes which occur due to uncertainties at tank farms could increase the cost to complete the effort in this work plan.

3.1 LANL/EG&G

Project Manager:	H. Hoida
Lead Engineer:	T. S. Pounds

- Support all phases of transition.
- Develop documented information for the following per the direction of Remote Systems Development.

Note: Remote Systems Development is responsible for converting this information to WHC format.

- Vendor information (VI)
- System design description (SDD)
- Functional design criteria (FDC)
- Construction/procurement specifications
- Conceptual design report (CDR)
- Operating specifications (OSD)
- Support craft and operator training, as necessary.
- Provide equipment calibration information per manufacturer's recommendations.
- Provide a comprehensive DACS-1 equipment list.
- Provide a detailed DACS-1 system breakdown as part of the SDD.
- Review pertinent ABU documentation.
- Provide as-built, design, detail, and IEFD drawings.
- Provide a recommended spare parts/equipment list.
- Transfer property to WHC.

3.2 WASTE TANK HYDROGEN MITIGATION

Project Manager: J. W. Lentsch

- Provide funding.
- Plan and coordinate overall DACS-1 transition as it pertains to the larger mitigation scope.

3.3 WHC REMOTE SYSTEMS DEVELOPMENT

Lead Manager: R. E. Bauer
Lead Engineers: R. W. Truitt (Hardware)
S. G. McNeece (Software)

- Provide overall responsibility for the success of the transition.
- Provide WHC interface to LANL/EG&G support personnel.
- Provide DACS-1 transition work plan.
- Provide cost and schedule estimates.
- Provide DACS-1 transition close-out report (Section 2.4).
- Ensure WHC organizations respond in a timely and sufficient manner to support engineering, drafting, clerical, and technical writing support for deliverables.
- Coordinate drawing conversion activities.
- Develop a training plan and support training, as needed.
- Develop minimum qualifications for maintenance and operations personnel.
- Establish organizational responsibilities.

Hardware

- *Document vendor information (VI).
- Document system design description (SDD).
- Document functional design criteria (FDC).
- Document construction/procurement specifications.
- Document conceptual design requirements (CDR).
- Document operating specifications (OSD).
- Provide information to, and support, Waste Tank Maintenance Engineering in developing maintenance procedures and CBRS data, and follow.

- Document the spare parts/equipment list per TWRS spare parts program and order needed spares.

Software

- Develop a system requirements specification (SRS).
- Develop a system design description (SDD).
- Develop user documentation (technical manuals).
- Develop a validation and verification (V&V) plan.
- Develop a system configuration management plan.
- Complete software (Genesis, Modsoft) license transfer.
- Ensure completion of internal software QA audit acceptance prior to turnover.
- Document vendor information (VI).

*Document = Assemble draft information provided by LANL/EG&G and document as a retrievable WHC document.

3.4 TEST ENGINEERING

Cognizant Manager: R. W. Reed
Cognizant Engineers: J. McClees (Hardware)
G. J. Gauck (Software)

- Act, on behalf of Systems Engineering, as the design authority and customer for Waste Tank Plant Engineering (WTPE), the cognizant engineer, and cognizant manager for all structures systems and equipment (SSE) provided by this project.
- Advise, review, and approve applicable functional and design criteria, SSE design, safety, training, operating, and maintenance documents.
- Define what is required for "Acceptance for Beneficial Use" (ABU).

- Accept primary engineering responsibility for SSE provided by this project following approval of all ABU documentation by Waste Tank Operations (WTO).
- Ensure that a fire hazards analysis is prepared by Fire Protection Programs, as required by DOE Order 6430.1a.

3.5 WASTE TANK QUALITY ASSURANCE

Cognizant Manager: D. C. Board
Cognizant Engineer: M. L. McElroy

- Review and approve all ABU documentation as it pertains to quality engineering.
- Perform the necessary surveillance and inspection activities to assure conformance to the appropriate documents and procedures throughout the transition effort.
- Perform design verification activities to ensure that the as-built engineering documentation reflects final system configuration.
- Review and approve approval designators and safety class designations.
- Green tag components and equipment when ready for field and/or spare parts storage.

3.6 SAFETY ASSURANCE

Cognizant Manager: M. N. Islam
Cognizant Engineer: L. S. Krogsrud

- Review and approve safety class designations, SEL.
- Review and approve all ABU documentation where applicable to safety. Verify compliance with the mitigation safety assessment and the tank farm interim safety basis.

3.7 WHC DESIGN, DRAFTING AND CHECKING SERVICES

Manager: F. A. Plastino
Designer/Draftsmen/Checkers: As approved by R. E. Bauer

- Provide checkers to review and approve all converted DACS-1 drawings.
- Convert LANL/EG&G drawings to WHC H-2 drawings per direction from Remote Systems Development.

3.8 WHC SPECIAL PROJECTS

Cognizant Manager: C. E. Hanson
Cognizant Engineer: G. F. Vargo, Jr.

- Prepare SEL and append to existing double-shell tank ISEL.
- Act as a DACS-1 technical point of contact in support of the transition.

3.9 MAINTENANCE ENGINEERING

Cognizant Manager: D. G. Hert
Cognizant Engineer: Per manager's direction

- Develop maintenance and calibration procedures, as necessary.
- Develop CBRS data (job cards), as necessary.

3.10 WASTE TANK OPERATIONS

Cognizant Manager: J. H. Wicks, Jr.
Lead Manager: J. J. Klos

- Advise, review, and approve ABU documents, as necessary.
- Advise, review, and approve DACS-1 transition schedule as it pertains to the integrated operations schedule.
- Provide qualified craft and operations personnel for DACS-1 training and support, as necessary (refer to Appendix A).

3.11 POLICY AND PROCEDURES

Lead Manager: W. J. Lehman
Lead Engineer: Per manager's direction

- Generate final drafts of operating procedures (POP) and follow through to final approval.
- Generate final drafts of surveillance procedures (Ors) and follow through to final approval.

Note: Draft procedures will be provided by Remote Systems Development.

4.0 SCHEDULE

The DACS-1 transition schedule, shown in Attachment 1, depicts only the primary deliverables per Section 2.3. The schedule will be updated, as needed.

5.0 COST ESTIMATE

N/A.

6.0 REFERENCES

WHC Level II Controlled Manuals

--	WHC-CM-1-3	Management Requirements and Procedures (MRP)
--	WHC-CM-2-1	Procurement Manual
--	WHC-CM-4-2	Quality Assurance Manual
--	WHC-CM-6-1	Standard Engineering Practices (EP)
--	WHC-CM-3-10	Software Practices

ID	Name	Start	Finish	Resource	Qtr 1, 1994			Qtr 2, 1994			Qtr 3, 1994			Qtr 4, 1994			Qtr 1, 1995			Qt
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	System Design Description (SDD)	1/28/94	8/19/94	Pounds																
2	Functional Design Criteria	1/5/94	7/22/94	Truitt																
3	Safety Equipment List (SEL)	1/5/94	9/30/94	Ermi																
4	Drawing List	1/5/94	6/24/94	Akers																
5	Drawing Transition	1/5/94	11/30/94	Akers																
6	Hardware VI	1/5/94	8/26/94	Smith																
7																				
8	System Requirements Specification	1/5/94	8/19/94	Truitt																
9	Computer Software Des Desc (CSDD)	1/5/94	8/19/94	Williams																
10	Technical Manuals	2/7/94	9/30/94	Truitt																
11	Validation & Verification	4/1/94	7/29/94	Truitt																
12	System Config Mgmt Plan (SCMP)	1/5/94	7/22/94	Gauck																
13	License Transfer	4/15/94	8/26/94	Truitt																
14	Software VI	1/5/94	8/26/94	Smith																
15																				
16	Maintenance Procedures (UPS 3)	5/16/94	8/19/94	Jacobsen																
17	Calibration Procedures (3)	5/16/94	8/19/94	Jacobsen																
18	CBRS Input Forms	5/16/94	8/19/94	Jacobsen																
19																				
20	Training (Overview)	6/24/94	9/30/94	Truitt																
21	Property Transfer	4/7/94	9/30/94	Truitt																
22	DACS Transition Close Out Report	9/2/94	9/30/94	Truitt																
Project: DACS-1 Transition Date: 1/1/94					Critical		Progress		Summary
					Noncritical		Milestone		Rolled Up

Attachment 1

Attachment 2

DACS TRANSITION PLAN DELIVERABLES FLOW DIAGRAM

DACS TRANSITION DELIVERABLES FLOW DIAGRAM

SEL - SAFETY EQUIPMENT LIST
 VI - VENDOR INFO
 FDC - FUNCTION DESIGN CRITERIA
 CDR - CONCEPTUAL DESIGN REPORT
 SDD - SYSTEM DESIGN DESCRIPTION
 POP - PLANT OPERATING PROCEDURE

Attachment 3

APPENDIX A

WORK BREAKDOWN STRUCTURE

WORK BREAKDOWN STRUCTURE

The following is an outline of the required tasks to provide the corresponding hardware, software, and operations deliverables, along with the assigned responsibility. The deliverables and responsibilities shown are consistent with Section 3.0 above.

HARDWARE

Safety Equipment List (SEL)

- Prerequisites: Comprehensive DACS-1 system breakdown from LANL.
- Tasks:
1. Generate a detailed DACS-1 system/subsystem breakdown (LANL/EG&G).
 2. Assign system and component safety classification, per EP-1.4 (Vargo).
 3. Develop an SEL to follow by example and eventually be appended to the existing "Double-Shell Tank Interim Safety Equipment List," WHC-SD-WM-SEL-026 (Vargo).
 4. Revise WHC-SD-WM-SEL-026 by ECN to include the DACS-1 equipment safety classes. Note: ECN approval per R. A. Dodd or R. W. Reed (Vargo).

Vendor Information (VI) Files

- Prerequisites: None.
- Tasks:
1. Gather all DACS-1 vendor information. Note: Strictly vendor information, not contractor information EG&G drawings, etc. VI files are set up to be equipment-specific [e.g., RPM gauges, temperature gauges, etc.] (LANL/EG&G/Truitt).
 2. Group and set up retrievable documents of this information into WHC Central Files, per EP-3.3 (Truitt).
 3. Generate a comprehensive list of the DACS-1 VI files (Truitt).

Fire Hazards Analysis

Prerequisites: None.

Tasks: 1. Prepare a fire hazards analysis on the DACS-1 trailer as required by DOE Order 6430.1a for acquisition of property (McClees/Huckfeldt).

DACS-1 Drawings

Prerequisites: None.

Tasks: 1. Generate a comprehensive list of DACS-1 drawings. Update this list to accurately reflect the following work (LANL/EG&G/Truitt).

2a. Identify existing LANL/EG&G drawings to be assigned "H-2" drawing numbers (e.g., DACS-1 "detail" drawings), not drawings to be converted to WHC drawings. Assign H-2 drawing numbers accordingly (Truitt).

b. Identify existing LANL/EG&G drawings to be converted to WHC drawings (e.g., IEFDs, as-builts, and other essential drawings). Convert the identified drawings accordingly. Note: The DACS-1 IEFDs are to be appended to the existing 241-SY-101 IEFDs (Truitt/Plastino).

c. Identify nonexistent essential drawings that need to be generated and generate accordingly (Truitt/Plastino).

3. Update the WHC essential drawing list accordingly (contact B. E. Salazar, 373-2016) (Truitt).

Functional Design Criteria (FDC)

Prerequisites: Work in parallel with CDR.

Tasks: 1. Generate a DACS-1 FDC per WHC-CM-6-1, Appendix D (LANL/EG&G/Truitt).

Conceptual Design Report (CDR)

Prerequisites: Work in parallel with FDC.

Tasks: Note: May already be covered in the 30 percent design review. If not, provide changes including information from the FDC, as needed (LANL/EG&G/Truitt).

System Design Description (SDD)

Prerequisites: -- Functional design criteria (FDC)
-- Conceptual design report (CDR)
-- Safety equipment list (SEL)
-- Vendor information (VI)
-- Drawings

Tasks: 1. Develop an SDD per WHC-CM-6-1, Appendix E (LANL/EG&G/Truitt).

Operating Specifications (OSD)

Prerequisites: -- System design description (SDD)
-- Functional design criteria (FDC)
-- Conceptual design report (CDR)
-- Safety equipment list (SEL)
-- Vendor information (VI)
-- Drawings

Tasks: 1. Develop OSD per WHC-CM-6-1, Appendix K, as needed (LANL/EG&G/Truitt).
2. Revise the existing "watch-list tank" OSD, OSD-T-151-00030, to include the additional OSD, as needed (Truitt).

SOFTWARE

System Requirements Specification (SRS)

Prerequisites: -- Document safety class designation (WHC-CM-6-1, EP 1.4)
-- Document quality affecting software criteria (WHC-CM 4-2, Appendix B)

- Document Impact Level (WHC-CM-6-1, EP 1.4, MRP 5.43)
 - The DACS-1 100 percent design review report
- Tasks:
1. Prepare an SRS to document the essential requirements of the DACS-1 software and the associated interfaces as required per SP-2.1, Section 5.2.2 (WHC-CM-3-10) (LANL/EG&G/McNeece).

Computer Software Design Description (CSDD)

- Prerequisites:
- Document safety class designation (WHC-CM-6-1, EP 1.4)
 - Document quality affecting software criteria (WHC-CM 4-2, Appendix B)
 - Document Impact Level (WHC-CM-6-1, EP 1.4, MRP 5.43)
- Tasks:
1. Prepare a CSDD to document the entire DACS-1 computer software subsystems (Genesis and all associated computer stations, Modicon PLC software, Eaton Variable Frequency Drives, and all hardware and software interdependencies) as required per SP-2.1, section 5.2.2 (WHC-CM-3-10) (LANL/EG&G/McNeece).

Validation and Verification Plan (V&V)

- Prerequisites:
- Document safety class designation (WHC-CM-6-1, EP 1.4)
 - Document quality affecting software criteria (WHC-CM 4-2, Appendix B)
 - Document Impact Level (WHC-CM-6-1, EP 1.4, MRP 5.43)
- Tasks:
1. Prepare a V&V plan for DACS-1 computer software as required per SP-2.1, Section 5.2.2 (WHC-CM-3-10) (McNeece).

Technical Manuals

- Prerequisites:
- None
- Tasks:
1. Compile and release all technical manuals associated with the DACS-1 computer hardware and

software into the WHC vendor information system (LANL/EG&G/McNeece).

System Configuration Management Plan (SCMP)

- Prerequisites:
- Document safety class designation (WHC-CM-6-1, EP 1.4)
 - Document quality affecting software criteria (WHC-CM 4-2, Appendix B)
 - Document impact level (WHC-CM-6-1, EP 1.4, MRP 5.43)
 - DACS-1 CSDD
- Tasks:
1. Prepare and release a SCMP to ensure strict configuration control for the DACS-1 software and hardware changes per the requirements set forth in WHC-CM-6-1, EP 1.12 and EP 2.1 (Gauck).

Commercial Software License Transfer

- Prerequisites:
- List of software package titles
 - Vendor name, address, phone numbers
 - Version numbers
 - Serial numbers
 - Original purchaser (license holder)
- Tasks:
1. Notify vendor(s) of ownership transfer (LANL/EG&G).
 2. Notify WHC legal department and initiate software license transfers (McNeece).

Support Contracts

- Prerequisites:
- Identify all current support contracts for DACS-1 computer hardware and software (e.g., Ken Eldridge) (LANL/EG&G)
- Tasks:
1. Review current contracts, evaluate needs, and initiate WHC-based contracts if deemed necessary (Truitt).

DACS-1 Computer Software Support Training

- Prerequisites:
- Availability of EG&G (Jeff Martin) and consultant (Ken Eldridge)

- Tasks:
1. Perform on-the-job training for future support of DACS-1 software maintenance and software upgrades (McNeece/Smith).
 2. Develop off-line DACS-1 system for software development and testing (Truitt/McNeece).

Internal QA Audit

- Prerequisites:
- Ensure that all documents are specified in this work plan have been prepared, approved, and released

- Tasks:
1. Request an internal QA audit from Waste Tank Quality Assurance (Truitt/McNeece).
 2. Perform an internal QA audit, and prepare a findings report (McElroy).
 3. Address any deficiencies and prepare an overall DACS-1 transition close-out report (Truitt).

OPERATIONS

Calibrations

- Prerequisites:
- Safety equipment list (SEL)
 - Vendor information (VI)
 - Drawings (optional or as required)
 - List of instruments needing calibration

- Tasks:
1. Provide a list of instruments requiring calibration and applicable VI to Maintenance Engineering (LANL/EG&G).
 2. Generate calibration procedures as needed and follow through to final approval (Hert).
 3. Generate corresponding CBRS input forms and follow through to final approval (Hert).

Operating Procedures (POP)

Prerequisites:

-- System design description (SDD)

. Tasks:

1. Generate a list of needed operating procedures (e.g., HVAC startup/shutdown, UPS operation, etc.) (LANL/EG&G).
2. Draft corresponding procedures and provide to Policy and Procedure group, W. J. Lehman (LANL/EG&G).
3. Develop final drafts of above procedures and follow through to final approval (Lehman).

Maintenance Procedures

Prerequisites:

-- System design description (SDD)

Tasks:

1. Generate a list of equipment requiring preventive maintenance and provide to Maintenance Engineering along with applicable vendor information (LANL/EG&G/Truitt).
2. Generate corresponding preventive maintenance procedures as needed and follow through to final approval (Hert).

Surveillance Procedures

Prerequisites:

-- System design description (SDD)

Tasks:

1. Generate a list of instruments requiring routine surveillance (e.g., temperatures, pressures, etc.) (LANL/EG&G/Truitt).
2. Draft corresponding "operator rounds" (OR) procedures and provide to Policy and Procedure group, W. J. Lehman (LANL/EG&G).
3. Develop final drafts of above procedures and follow through to final approval (Lehman).

Operator and Craft Training

Prerequisites:

- System design description (SDD)
- Calibration procedures and CBRS
- Operating procedures (POP)
- Maintenance procedures (PMs)
- Surveillance Procedures (Ors)

Tasks:

1. Generate a list of LANL/EG&G personnel, their responsibilities, and their WHC counterparts (LANL/EG&G).
2. Develop a methodical training plan along with requirements for certification. LANL will provide input (LANL/EG&G/Truitt/Klos).
3. Provide qualified craft and operator personnel for hand-on training. Note: This step should begin ASAP (Klos).
4. Complete training and document, as needed (Klos).

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ABBREVIATIONS

ABBREVIATIONS

The following are acronyms used in this document:

ABU	Acceptance for Beneficial Use
CBRS	Component Base Recall System
CM	Controlled Manuals
DACS-1	Data Acquisition and Control System
EG&G	EG&G Energy Measurements, Las Vegas, Nevada
FDM	Facility Description Manual
GMS	Gas Monitoring System
I&C	Instrumentation and Control
IEFD	Instrument/Equipment Flow Diagram
KEH	Kaiser Engineering Hanford
LANL	Los Alamos National Laboratory
OMM	Operation and Maintenance Manual
PLC	Programmable Logic Controller
PM	Preventive Maintenance
PNL	Pacific Northwest Laboratory
RSS	Remote Supervisory Station
SA	Safety Analysis
SAR	Safety Analysis Report
SD	Supporting Document
SDD	System Design Description
SEL	Safety Equipment List

VI	Vendor Information
WBS	Work Breakdown Structure
WHC	Westinghouse Hanford Company