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Project Title/Work Order Project W-151 Development Work Plan for: 6-Inch Riser Mapping Profiler and Data Acquisition System		EDT No. 609774 ECN No.

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Start (2)
JAN 31 1995

ENGINEERING DATA TRANSMITTAL

Page 1 of 1
 1. EDT **609774**

2. To: (Receiving Organization) <i>Distribution</i>	3. From: (Originating Organization) TWRS Special Projects	4. Related EDT No.: <i>N/A</i>
5. Proj./Prog./Dept./Div.: Project W-151, Tank AZ-101	6. Cog. Engr.: D. W. Crass 71650/C16166	7. Purchase Order No.: <i>N/A</i>
8. Originator Remarks: <i>Work Plan For approval and Release</i>		9. Equip./Component No.: Tank AZ-101
		10. System/Bldg./Facility: <i>N/A</i>
11. Receiver Remarks:		12. Major Assm. Dwg. No.: <i>N/A</i>
		13. Permit/Permit Application No.: <i>N/A</i>
		14. Required Response Date: <i>N/A</i>

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	WHC-SD-W151-WP-005	N/A	0	Project W-151 Development Work Plan for: 6-inch Riser Mapping Profiler and Data Acquisition System	Q	1	1	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)											
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BD-7400-172-2 (04/94) GEF097

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FEB 14 1995
OSTI

BD-7400-172-1

RELEASE AUTHORIZATION

Document Number: WHC-SD-W151-WP-005, REV 0

Document Title: Project W-151 Development Work Plan for: Tank AZ-101
Riser Mapping Tool and Data Acquisition System

Release Date: 1/31/95

**This document was reviewed following the
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WHC Information Release Administration Specialist:


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January 31, 1995

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SUPPORTING DOCUMENT

1. Total Pages **7**

2. Title

Project W-151 Development Work Plan for: Tank AZ-101 Riser Mapping Tool and Data Acquisition System

3. Number

WHC-SD-W151-WP-005

4. Rev No.

0

5. Key Words

Project W-151
Tank AZ-101
Riser
Profiler
Data Acquisition

6. Author

Name: D. W. Crass

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Signature *1/30/95*

Organization/Charge Code 71650 / D2DAI

7. Abstract

8. RELEASE STAMP

OFFICIAL RELEASE 2
BY WHC
DATE **JAN 31 1995**
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**PROJECT W-151 DEVELOPMENT WORK PLAN FOR:
6-INCH RISER MAPPING PROFILER AND DATA ACQUISITION SYSTEM**

D. W. Crass

January 1995

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**DEVELOPMENT WORK PLAN FOR:
6-INCH RISER MAPPING PROFILER AND DATA ACQUISITION SYSTEM**

1.0 INTRODUCTION

This document identifies a plan for developing, assembling, and testing a data acquisition system for a 6-inch schedule 40 riser mapping profiler. This plan includes testing and qualifying the integrated system (data acquisition system, riser mapping profiler, and hoist positioner) for plant use. The integrated system supports project W-151 construction activities and will measure diameter, ovality and vertical alignment of the AZ-101 tank risers.

2.0 SCOPE

This plan establishes and controls the method for developing, assembling, testing, and qualifying a riser mapping profiler and data acquisition system. The data acquisition system will be qualified separately then integrated with the mapping profiler and hoist positioner to qualify the entire system.

2.1 Objectives

The objective of this plan is to specifically define the task, cost, schedule, and deliverables to be furnished by TWRS Special Projects.

2.2 Deliverables

- Plant-unit design drawings for a data acquisition system.
- Plant-unit design drawings for a riser mapping profiler and hoist positioner (overall assembly).
- Preliminary test plan for a data acquisition system and riser mapping profiler.
- Approved qualification test plan for a data acquisition system and riser mapping profiler.
- Completed qualification test of an integrated riser mapping system by May 15, 1995.

3.0 DESCRIPTION

3.1 Task Description

Develop, assemble, test, and qualify a riser mapping profiler and data acquisition system for plant use. The integrated system will be capable of measuring diameter, ovality, and vertical alignment of 6-inch risers. Dimensional data will be received by the data acquisition system and stored for later transfer to a portable computer. The data acquisition system will

be tested in it's final configuration. All testing will be completed in the 305 Building or Hanford Standards Laboratory.

Preliminary testing can be performed at the discretion of the test engineer. Test procedures and data sheets will be prepared by the test engineer and will be included in the final documentation. Approval of the test procedures will be performed by the cognizant test engineer and facility manager.

A qualification test procedure will be written and approved prior to conducting the qualification test.

3.2 Engineering Tasks

Engineering support will be required to develop, assemble, test, and qualify the data acquisition system and riser mapping profiler for plant use. The cognizant engineer will be responsible for recording and documenting test data and hardware and software modifications.

3.3 Verification

Design verification of the data acquisition system and riser mapping profiler will consist of a qualification test and an independent review of the engineering documentation. The verification process will be governed by EP-4.1, Design Verification Requirements.

Equipment check out and preliminary tests will be completed in the 305 Building or the Hanford Standards Lab. A separate qualification test conducted in the 305 Building will provide for the acceptance and green tagging of the equipment.

A qualification test will be completed to ensure that the design and fabrication of the system complies with technical, quality, and safety requirements before authorizing its use in the tank farms. Included in the qualification procedure will be all testing and equipment acceptance requirements. The qualification test will assure that the system will perform as designed.

Following qualification testing, equipment fabricated per EP-2.4, Development Control, will be validated against the engineering drawings per paragraph 5.2 and accepted by Engineering and Quality Assurance. Drawings associated with equipment not under development control will be as-built and released as a next revision per EP-2.2, Engineering Document Change Control. The equipment will then be tagged as accepted with a green tag for release and use at the tank farms. Details of the equipment acceptance will be included in the Qualification Test Procedure and issued as a separate document.

4.0 ORGANIZATIONAL AND FUNCTION RESPONSIBILITIES

TWRS Special Projects will oversee or perform all engineering, development, assembly, and testing of the system.

The 305 Testing Laboratory or Hanford Standards Laboratory will provide facilities and personnel required to setup and perform the testing.

5.0 SCHEDULE/COST

<u>ACTIVITY</u>	<u>RESOURCES</u>	<u>Mhrs</u>	<u>COST</u>
Procurement spec.	Engineer	40.0	3.0 K
* Engineering sprt	Engineer	160.0	12.0 K
Procurement	Engineer	20.0	1.5 K
	Procurement Specialist	20.0	1.5 K
	Hardware/software		10.0 K
* Preliminary testing	Engineer	80.0	6.0 K
	Technician	200.0	20.0 K
	mockup/matrl.	80.0	14.0 K
Design/Drafting	Designer	160.0	12.0 K
* Qualification test	Engineer	40.0	6.0 K
	Technician	40.0	6.0 K
System documentation	Engineer	80.0	6.0 K
Test documentation	Engineer	160.0	12.0 K
* prlm. test plan			
* prlm. test report			
qual. test proc.			
qual. test report			
<u>Total</u>		<u>1080.0</u>	<u>110.0 K</u>

* Identifies expense funded tasks.

6.0 QUALITY ASSURANCE

Instrumentation requiring calibration will be identified as part of the test procedures. Instrumentation identified will have current calibration sticker attached. Preliminary testing will not require an approval

designation. Qualification tests and hardware procurement will require an approval designator Q.

Quality assurance personnel will be given a copy of all development testing.

7.0 SAFETY

No unique unusual industrial, radiological, chemical, fire release of energy, or critical safety hazards are involved with the performance or support of the testing. Safety personnel are not required to attend the testing.

8.0 REPORTS

Test reports will be written at the end of the preliminary test phase. Interim test reports will be prepared as needed to support design and other engineering activities.

9.0 DATA SHEETS

Data for the tests will be entered on data sheets written as part of the individual preliminary test procedures. A controlled log sheet will also be used for all testing to record information on test setup, problems, and other related information.