

Slack 2  
**JAN 27 2000**

**ENGINEERING DATA TRANSMITTAL**

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1	Design Authority	<i>GR Tardiff</i>	1/20/00		1	1	JR Bellomy	<i>JR Bellomy</i>	1/20/00	
1	Design Agent				1	1	PJ Fuller	<i>PJ Fuller</i>	1/25/00	
1	Cog Eng	<i>Dave Briggs</i>	1/20/00							
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1	QA	<i>W. Adams</i>	1/20/00							
1	Safety	<i>Rich Long</i>	1/20/00							
	Env									

18 Signature of EDT Originator <i>D. A. W.</i> Date 1/20/00	19 Authorized Representative of Receiving Organization	20 Design Authority/ Cognizant Mgr <i>GR Tardiff</i> Date 1/20/00	21 DOE APPROVAL (if required) Ctrl No <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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RPP-5577 Rev 0

**241-AZ-101 Mixer Pump Demonstration Test  
Gamma Cart ATP/QTP**

CH2M Hill Hanford Group

January 2000

# Execution and Test Approval

EXECUTED BY

\_\_\_\_\_  
Test Director                      Date

WITNESSES

\_\_\_\_\_  
QA/QC                                      Date

\_\_\_\_\_  
Authorized Inspector                      Date

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# 1.0 PURPOSE AND SCOPE

## 1.1 PURPOSE

This procedure provides instructions for performing a Shop Acceptance Test Procedure for the Sludge Mobilization Cart System

## 1.2 SCOPE

This procedure involves testing the Instrumentation involved with the Gamma Cart System, local and remote, including depth indicators, speed controls, interface to data acquisition software and the raising and lowering functions. This Procedure will be performed twice, once for each Gamma Cart System. This procedure does not test the accuracy of the data acquisition software.

# 2.0 INFORMATION

## 2.1 TERMS AND DEFINITIONS

2 1 1 ALARA - As Low As Reasonably Achievable

## 2.2 RESPONSIBILITIES

2 2 1 Test Engineer is responsible for the following

- Ensuring all preparations for this Test have been completed
- Support Test Director and Test Personnel with the technical information and support necessary to complete this procedure

2 2 2 Test Director has the option of assigning a designated Recorder to fulfill the following recording criteria

- Record, check off, initial, enter N/A, and ensure verification signatures are obtained as each step and section completes

2 2 3 Operation Personnel are responsible for operating the equipment per the Test Engineer and Test director's direction

2 2 4 QC Inspector is responsible for witnessing test execution and signing the completed sections of the test

2 2 5 The Authorized Inspector is responsible for the following

- Witnessing test execution
- Approval and signature of acceptance upon completion of this procedure

## 2.2 RESPONSIBILITIES (cont.)

2 2 6 Test Director is responsible for the following

- The safe, efficient, and productive performance of the test
- Coordination of all testing activities
- Scheduling and conducting a pre-test meeting with test participants
- Notification of the persons performing and witnessing the test prior to the start of testing
- Notification of all involved test personnel when a change is made in the testing schedule
- Act as liaison between the participants involved with the testing
- Stopping any test or section which may cause damage to the system
- Obtaining revisions to the Test Procedure, to comply with authorized field changes or to accommodate existing field conditions
- Taking actions to resolve exceptions to the Test Procedure
- Signing the Acceptance Test Procedure Exception Record when a test exception has been resolved
- Evaluating recorded data, discrepancies, and exceptions
- Signing Test Execution Sheet when this Test Procedure has been performed
- Signing Exception Record when a retest to clear an exception has been executed and accepted
- Obtaining required signatures on the Test Procedure Working Copy prior to reproduction and distribution
- Preparing and issuing an Acceptance Test Report for the approved, accepted and completed Test Procedure

## 2.3 REFERENCES

- HNF-SD-WM-PTP-027, Rev 3 Mixer Pump Test Plan for Double Shell Tank AZ-101
- HNF-3839 Data Collection Plan for AZ-101 Mixer Pump Tests
- RPP-5576 Gamma Cart System Description
- H-2-79215, R2 TWRS SLUDGE CART ENCL ELC ASEMBLY
- H-2-79215, R2 TWRS SLUDGE CART ENCL ELEMENTARY DIAGRAM
- H-2-79233, R0 TWRS SLUDGE CART ENCL WIRING DIAGRAM
- H-2-79234, R3 TWRS SLUDGE MOBILIZATION CART ARRANGEMENT

## 2 4 GENERAL INFORMATION

- 2 4 1 All entries recorded in this procedure shall be made in black ink
- 2 4 2 Procedural and technical requirement changes must be processed by Procedure Change Authorization in accordance with approved procedures. If a need for such a change is discovered in the course of running the test, Test Director must decide
- If the applicable portion of the test shall be stopped, an exception written, and if the test equipment shall be placed in a safe configuration, until the Procedure Change Authorization is approved
- OR
- If the integrity of the test will not be jeopardized and continuation of test can occur safely, the continuation of and/or the running of the test portions unaffected by the change
- 2 4 3 Acceptance Test steps detailed in individual Tests in Section 5 0 shall be performed sequentially, unless otherwise noted or as directed by the Test Director
- Individual Test Procedure Sections may be performed out of sequence at the direction of the Test Director, if the intent of the test is not compromised
  - As as each step is completed, each step will be checked off (or enter "N/A" for), as required in the spaces provided on the Working Copy of this Acceptance Test Procedure
  - Any step that requires verification of data must include recording data on the Working Copy

## 2.4 GENERAL INFORMATION (Cont) .

- 2 4 4 Any non-conformance of the instrumentation, unexpected results or exceptions during testing shall be sequentially numbered and recorded in the Acceptance Test Procedure Exception Log and on individual Acceptance Test Procedure Exception Records. Thus, case-by-case resolution, recording, approval, and distribution of each exception will be achieved.
- 2 4 5 Resolve test exceptions in the following manner
- After successful resolution of an exception, record the action taken to resolve the exception in the "Resolution of Exception" section of the Acceptance Test Procedure Exception Record
  - When the action taken results in an acceptable retest, initial and date the Correction Approval section of the Exception Sheet
  - When the action taken does not result in an acceptable retest, provide in the performance log, a detailed explanation of why the retest action was not acceptable, and what additional plans are required
- 2 4 6 Upon completion of the Acceptance Test Procedure, obtain approval of the test performance. Each Test Execution Sheet will stand alone as approval for the system under test. The Acceptance Test will be complete when all the outstanding tests have been performed and the Acceptance Test Report is prepared. The test will be approved by checking the proper response, with or without exceptions, on the Test Execution Sheet under the "Approval and Acceptance of Test Results" section of the Test Execution Sheet.

## 2.4 GENERAL INFORMATION (Cont) .

NOTE - The following steps detail the possible conditions that may exist at the completion of the Acceptance Test Procedure, and the steps necessary to complete acceptance in those conditions

2 4 7 The completed test may be approved without test exceptions

- Check applicable space on Test Execution Sheet to show that the Acceptance Test Procedure has been performed and no exceptions have been recorded
- Appropriate individual Test Performers will sign and date the Test Execution Sheet in the spaces provided
- Distribute requisite copies as directed by the client
- Send the Master Copy of the completed Acceptance Test Procedure to the client

2 4 8 The completed test may be approved with exceptions resolved

- Check applicable space on Test Execution Sheet to show that this procedure has been performed with exceptions recorded and resolved
- Appropriate individual Test Performers will sign and date the Test Execution Sheet in the spaces provided
- Distribute requisite copies as directed by the client
- Send the Master Copy of the completed Acceptance Test Procedure to the client

**2 5 RECORDS**

- 2 5 1 All personnel involved in the performance of this test shall sign in Procedure Signature Sheet
- 2 5 2 Test results shall be recorded Unless specific data is required, the signature or initials as applicable, of the person accepting the item will be entered in the blank provided to indicate compliance with the stated requirements or the successful completion of the given test step Errors shall be corrected by crossing out the incorrect data with a single line and the correct response shall be written in the direct vicinity of the original item The person making the correction shall initial and date the correction A complete working copy of this procedure and any exception records generated shall be maintained as a permanent record
- 2 5 3 An Exception Log and Exception Record sheet is attached in the event exceptions to the test are made when the test is being performed All exceptions to the test are to be dispositioned and agreed to by all witnesses Actions taken regarding disposition are noted on the exception sheet During the performance of this test, errors in test may be encountered which require correction or adjustment to complete the test Such corrections are to be noted in the procedure and listed as an exception

## 3.0 PRECAUTIONS AND LIMITATIONS

### 3 1 PERSONNEL SAFETY

- 3 1 1 If the performance of this procedure is suspended for any reason, ensure the equipment is left in a safe state
- 3 1 2 If any equipment problem is observed during the performance of this procedure, immediately notify the Test Director
- 3 1 3 Proper lifting techniques shall be utilized throughout the procedure and personnel shall take precautions to ensure back strain, pinchpoints and protective clothing are observed

## 4.0 PREREQUISITES

### 4 1 SPECIAL TOOLS, EQUIPMENT, AND SUPPLIES

The following supplies may be needed to perform this procedure

- Tape Measure/Ruler

### 4.2 CONDITIONS AND ACTIONS

NOTE- All signators on this procedure shall document their signature on Procedure Signature Sheet

- 4 2 1 All field testing and inspection of the system or portions of the system to be tested has been completed

\_\_\_\_\_  
Test Engineer Signature      Date

- 4 2 2 A pre-job briefing has been held and all participants have been thoroughly briefed on job safety, hazards and their responsibilities before performing this ATP

\_\_\_\_\_  
Test Director Signature      Date

- 4 2 3 Test Director VERIFY section 4 2 has been COMPLETED

\_\_\_\_\_  
Test Director Signature      Date

# 5.0 PROCEDURE

## 5 1 SETUP

- \_\_\_\_\_ 5 1 1    **RECORD** the Gamma Cart Identifier letter and CPU number  
for the system being tested
- Gamma Cart = \_\_\_\_\_            CPU = \_\_\_\_\_
- \_\_\_\_\_ 5 1 2    **ENSURE** the GAMMA CART riser extension tool is mounted on  
the test riser
- \_\_\_\_\_ 5 1 3    **ENSURE** the Gamma CART is placed in line with riser  
extension tool to facilitate installation of probe and  
cables
- \_\_\_\_\_ 5 1 4    **ENSURE** the "Raise-Off-Lower" selector switch is in the  
"OFF" position
- \_\_\_\_\_ 5 1 5    **ENSURE** the Emergency Stop button is pulled out
- \_\_\_\_\_ 5 1 6    **POSITION** the speed control potentiometer to zero speed  
(fully counter clockwise)
- \_\_\_\_\_ 5 1 7    **ENSURE** the Local/Control button is in the "Local"  
position
- \_\_\_\_\_ 5 1 8    **ENSURE** probe, limit switch, communication and power  
cables are connected

## 5 2 LOCAL CONTROL

- \_\_\_\_\_ 5 2 1 **ENSURE** the Local/Control button is in the "Local" position
- \_\_\_\_\_ 5 2 2 **MOVE** the RAISE-OFF-LOWER selector switch to the LOWER position
- \_\_\_\_\_ 5 2 3 **SET** the speed control knob to approximately 20%
- \_\_\_\_\_ 5 2 4 **PRESS AND HOLD** the Reset button on the cart
- \_\_\_\_\_ 5 2 5 **Ensure** the probe begins to lower
- \_\_\_\_\_ 5 2 6 **RELEASE** the Reset button on the cart
- \_\_\_\_\_ 5 2 7 **Ensure** the speed changes as the speed controller is adjusted from 0-100%
- \_\_\_\_\_ 5 2 8 **SET** the speed control knob to approximately 20%
- \_\_\_\_\_ 5 2 9 **PRESS** the Emergency Stop button on the cart as the probe is lowering
- \_\_\_\_\_ 5 2 10 **ENSURE** the cable has stopped moving
- \_\_\_\_\_ 5 2 11 **PULL** the Emergency Stop button
- \_\_\_\_\_ 5 2 12 **PRESS** the Reset button on the cart
- \_\_\_\_\_ 5 2 13 **ENSURE** the probe continues to lower
- \_\_\_\_\_ 5 2 14 **MOVE** the RAISE-OFF-LOWER selector switch to the OFF position
- \_\_\_\_\_ 5 2 15 **ENSURE** the probe stops
- \_\_\_\_\_ 5 2 16 **MOVE** the RAISE-OFF-LOWER selector switch to the RAISE position
- \_\_\_\_\_ 5 2 17 **ENSURE** the probe begins to raise
- \_\_\_\_\_ 5 2 18 **Ensure** the speed changes as the speed controller is adjusted from 0-100%
- \_\_\_\_\_ 5 2 19 **SET** the speed control knob to approximately 20%
- \_\_\_\_\_ 5 2 20 **ENSURE** the probe trips the limit switch and stops
- \_\_\_\_\_ 5 2 21 **ENSURE** the local depth indicator indicates 0, by hitting reset if necessary
- \_\_\_\_\_ 5 2 22 **MOVE** the RAISE-OFF-LOWER selector switch to the OFF position
- \_\_\_\_\_ 5 2 23 **SET** the speed control knob to 0%

## 5 3 LOGIN

- 
- 5 3 1 At the operating system login screen, **PRESS** cancel
- 
- 5 3 2 **ENSURE** Gamma Cart Spectrum Analyzer and Control System Login screen loads
- 
- 5 3 3 **CLICK** on login button
- 
- 5 3 4 On the login window **INPUT** the following data obtained from the test director
- Valid System Engineer Username
  - Correct Password
- 
- 5 3 5 **EXIT** necessary programs **AND ENSURE** directory of the format "C \A-00mmdd" or "C \B-00mmdd" (depending on cart tested) does not exist
- 
- 5 3 6 **RESTART** the system
- 
- 5 3 7 At the operating system login screen, **PRESS** cancel
- 
- 5 3 8 On the login window **INPUT** the following data obtained from the test director
- Valid Operator Username
  - Incorrect Password
- 
- 5 3 9 **ENSURE** the login fails
- 
- 5 3 10 **CLICK** on "RETRY"
- 
- 5 3 11 Using the same Username **INPUT** a valid password ("gcart")
- 
- 5 3 12 **CLICK** on "OK" button
- 
- 5 3 13 **ENSURE** the screen changes to the Gamma Cart Display screen
- 
- 5 3 14 **UNPLUG** the communication cable **AND ENSURE** the "Communication Failure" message is flashing
- 
- 5 3 15 **PLUG** the communication cable back in **AND ENSURE** the "Communication Failure" message disappears
- 
- 5 3 16 On the control screen, **ENSURE** the Local/Remote switch displays in the LOCAL position
- 
- 5 3 17 On the control screen, **ENSURE** Start, Stop, Zero, Emergency Stop buttons and depth indication is not visible

## 5.4 Incremental Sample Mode

- \_\_\_\_\_ 5 4 1 **SET** the Local/Remote switch on the gamma cart to Remote
- \_\_\_\_\_ 5 4 2 **ENSURE** Start, Stop, Zero, and Emergency Stop buttons appear
- \_\_\_\_\_ 5 4 3 On the control screen, **ENSURE** the Local/Remote switch displays in the REMOTE position
- \_\_\_\_\_ 5 4 4 On the Gamma Cart Control screen, **SELECT** the "Config " button
- \_\_\_\_\_ 5 4 5 On the Data Collection Configuration window, **SELECT** the "Incremental" button
- \_\_\_\_\_ 5 4 6 **SELECT/ENTER** the following data

Tank Number	AZ-101
Cart	(step 5 1 1)
Probe Type	1
Riser ID ft	14D 55 410
Sample Time	120 sec

- \_\_\_\_\_ 5 4 7 **ENSURE** the Real/Live toggle button indicates "REAL"
- \_\_\_\_\_ 5 4 8 **INPUT** the following Sample Collection Data

Sample Start Depth	12 0 ft
Interval Size	1 5 ft
Sample End Depth	3 5 ft

- \_\_\_\_\_ 5 4 9 **CLICK** on "SAVE" button
- \_\_\_\_\_ 5 4 10 **CLICK** on "EXIT" button
- \_\_\_\_\_ 5 4 11 On the control screen, **SELECT** the Start button
- \_\_\_\_\_ 5 4 12 **ENSURE** the Start, Zero and logout buttons are not visible
- \_\_\_\_\_ 5 4 13 **ENSURE** the probe zeroes and data acquisition software indicates a sample time of 600 seconds
- \_\_\_\_\_ 5 4 14 **ENSURE** the on screen depth display **AND** local display indicate zero
- \_\_\_\_\_ 5 4 15 **MEASURE AND RECORD** the distance at each point in Table 5 4A

\_\_\_\_\_ 5 4 16 **ENSURE** the data collection software screen appears at each point AND indicates Preset Limit Real = 60 sec

\_\_\_\_\_ 5 4 17 **CLICK** on the "Probe Location" on the control screen

\_\_\_\_\_ 5 4 18 **ENSURE** the Probe Location screen appears and indicates the probe location

\_\_\_\_\_ 5 4 19 **CLICK** on the "Back" button

\_\_\_\_\_ 5 4 20 **ENSURE** the Probe Location screen closes

Note The cable is labeled in 1 foot increments

Table 5 4A

Depth (ft)	Local Depth Indicator	Remote Depth Indicator	Expected Cable Reading	Measured Cable Reading	Difference (inches) (Expected - Measured)	Data Collection Screen Appeared W/correct time (Y/N)
12						
10 5						
9						
7 5						
6						
4 5						

\_\_\_\_\_ 5 4 21 **ENSURE** the probe raises and trips the limit switch

\_\_\_\_\_ 5 4 22 **ENSURE** sample is collected at zero position

\_\_\_\_\_ 5 4 23 **ENSURE** Data Collection is Complete

\_\_\_\_\_ 5 4 24 **CLICK** on "OK"

\_\_\_\_\_ 5 4 25 **ENSURE** the local and remote depth indicators agree  $\pm 1"$

\_\_\_\_\_ 5 4 26 **ENSURE** the Probe stopped within 1 inch of each programmed stopping point

**NOTE** The following steps will require the use of a drywell or a person in the pit to maintain weight on the cable

- \_\_\_\_\_ 5 4 27 On the Gamma Cart Control screen, **SELECT** the "Config " button
- \_\_\_\_\_ 5 4 28 On the Data Collection Configuration window, **SELECT** the "Incremental" button
- \_\_\_\_\_ 5 4 29 **INPUT** the following Sample Collection Data

Sample Start Depth	50 0 ft
Interval Size	10 0 ft
Sample End Depth	0 0 ft

- \_\_\_\_\_ 5 4 30 **CLICK** on "SAVE" button
- \_\_\_\_\_ 5 4 31 **CLICK** on "EXIT" button
- \_\_\_\_\_ 5 4 32 On the control screen, **SELECT** the Start button
- \_\_\_\_\_ 5 4 33 **ENSURE** the probe zeroes and data acquisition software indicates a sample time of 600 seconds
- \_\_\_\_\_ 5 4 34 After the probe has lowered approximately 3 feet, **SELECT** the "ZERO" button
- \_\_\_\_\_ 5 4 35 **SELECT** the Stop button on the control screen
- \_\_\_\_\_ 5 4 36 **ENSURE** the probe stopped
- \_\_\_\_\_ 5 4 37 **SELECT** the "ZERO" button
- \_\_\_\_\_ 5 4 38 **SELECT** the Emergency Stop button on the control screen
- \_\_\_\_\_ 5 4 39 **ENSURE** the probe stopped
- \_\_\_\_\_ 5 4 40 **ENSURE** the "Probe not zeroed" message appears
- \_\_\_\_\_ 5 4 41 **SELECT** the Reset Emergency Stop button on the control screen
- \_\_\_\_\_ 5 4 42 **ENSURE** the Start, Stop and Zero buttons appear on the control screen
- \_\_\_\_\_ 5 4 43 **SELECT** the "ZERO" button
- \_\_\_\_\_ 5 4 44 **ENSURE** the limit switch is tripped

\_\_\_\_\_ 5 4 45 **MEASURE AND RECORD** the distance at each point in Table  
5 4B

\_\_\_\_\_ 5 4 46 **ENSURE** the data acquisition software appears AND REAL  
time indicates 60 secs

Note The cable is labeled in 1 foot increments

Table 5 4B

Depth (ft)	Local Depth Indicator	Remote Depth Indicator	Expected Cable Reading	Measured Cable Reading	Difference (inches) (Expected - Measured)	Data Collection Screen Appeared W/correct time (Y/N)
50						
40						
30						
20						
10						

\_\_\_\_\_ 5 4 47 **ENSURE** the Probe stopped within 2 inches of each  
programmed stopping point

\_\_\_\_\_ 5 4 48 **ENSURE** the stop depth is  $\pm 1/4$  inch from the starting  
point

\_\_\_\_\_ 5 4 49 On the Gamma Cart Control screen, **SELECT** the "Config "  
button

\_\_\_\_\_ 5 4 50 On the Data Collection Configuration window, **SELECT** the  
"Incremental" button

\_\_\_\_\_ 5 4 51 **INPUT** a Sample Start Depth, Interval Size and Sample End  
depth of -2 0 ft

\_\_\_\_\_ 5 4 52 **CLICK** on the "SAVE" button

\_\_\_\_\_ 5 4 53 **ENSURE** the data boxes are in red and an out of range  
message appears then **EXIT**

\_\_\_\_\_ 5 4 54 **SELECT** the config button and confirm that the "-2 0"  
values were not saved

## 5.5 User Defined Mode

\_\_\_\_\_ 5 5 1 On the Data Collection Configuration window, **SELECT** the "User Defined" button

\_\_\_\_\_ 5 5 2 **SELECT/ENTER** the following data

Tank Number	AZ-101
Cart	(step 5 1 1)
Riser ID ft	14G 55 370
Probe Type	2
Sample Time	150 sec

\_\_\_\_\_ 5 5 3 **ENSURE** the Real/Live toggle button indicates "LIVE"

\_\_\_\_\_ 5 5 4 **INPUT** the following Depths From Table 5 5

Table 5 5

Sample	Depth	Expected Cable Reading	Actual Cable Reading	Difference (Expected-Actual)
1	11 25			
2	10 00			
3	9 50			
4	8 75			
5	7 50			
6	7 25			
7	6 50			
8	4 25			
9	3 25			
10	3 00			
11	2 25			
12	1 75			
13	1 25			
14	2 75			
15	4 00			
16	7 00			
17	4 75			
18	11 00			
19	7 50			
20	8 25			

Note The cable is labeled in 1 foot increments

- \_\_\_\_\_ 5 5 5 **CLICK** on "SAVE"
- \_\_\_\_\_ 5 5 6 **CLICK** on "EXIT"
- \_\_\_\_\_ 5 5 7 On the control screen **SELECT** the Start button
- \_\_\_\_\_ 5 5 8 **ENSURE** the data acquisition software appears AND Preset Limits LIVE time indicates 600 secs
- \_\_\_\_\_ 5 5 9 **MEASURE AND RECORD** (in Table 5 5) the distance at each stopping point
- \_\_\_\_\_ 5 5 10 **ENSURE** sample is collected at zero position
- \_\_\_\_\_ 5 5 11 **ENSURE** Data Collection is Complete
- \_\_\_\_\_ 5 5 12 **CLICK** on "OK"
- \_\_\_\_\_ 5 5 13 **ENSURE** the Probe stopped within 1 inch of each programmed stopping point **AND INITIAL** the appropriate space in the table above

## 5.6 LOGOUT

- \_\_\_\_\_ 5 6 1 On Gamma Cart Display screen, **CLICK** on logout
- \_\_\_\_\_ 5 6 2 **ENSURE** the screen changes to the Login screen
- \_\_\_\_\_ 5 6 3 **CLICK** on Exit
- \_\_\_\_\_ 5 6 4 **ENSURE** system reboots to operating system login

## 5.7 DATA COLLECTION VERIFICATION

- \_\_\_\_\_ 5 7 1 Check the directory for the day was created, and **ENSURE** the data from this test was recorded
- \_\_\_\_\_ 5 7 2 **PRINT** out charts of the data gathered from this test





**ATP EXCEPTION RECORD**

This page may be reproduced as necessary  
 \_\_\_\_\_ of \_\_\_\_\_

Page

ATP STEP NUMBER	ATP EXCEPTION LOG#
DESCRIPTION OF EXCEPTION	
INITIATOR NAME/ORGANIZATION	
DATE OF EXCEPTION	
RESOLUTION OF EXCEPTION	
CORRECTION APPROVAL	
TEST DIRECTOR INITIAL	DATE
DATE OF RESOLUTION	
TEST DIRECTOR SIGNATURE	DATE
TEST ENGINEER SIGNATURE	DATE
QUALITY ASSURANCE SIGNATURE	DATE



# PROCEDURE HISTORY SIGNATURE SHEET