ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 628335

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Plutonium Finishing Plant	N/A

5. Proj./Prog./Dept./Div.:	6. Design Authority/Design Agent/Cog. Engr.:	7. Purchase Order No.:
PFP Analytical Laboratory	ST Hurlbut	N/A

9. Equip./Component No.: N/A

8. Originator Remarks:

Initial Release and Distribution
Key Words: AutoQuant, moisture, water, analysis, supercritical fluid, FTIR

10. System/Bldg./Facility: PFP

12. Major Assm. Dwg. No.: N/A

11. Receiver Remarks: 11A. Design Baseline Document? ☒ Yes ☐ 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 Desig-nator	Reason for Trans-mittal	Origi-nator Dispo-sition	Receiv-er Dispo-sition
1	HNF-6992		0	Software Mgmt, Req, Design	Q	2		
2	HNF-6993		0	Software Test Plan	Q	2		
	dp for STH 9/18/00							

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) Rea-son	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Rea-son	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
2	1	Design Authority ST Hurlbut	*[signature]*	9/12/00	T5-06						
		Design Agent				3		Central Files			B1-07
		Cog. Eng.									
2	1	Cog. Mgr. EW Curfman	*[signature]*	9/13/00	T5-05						
2	1	QA DR Groth	*[signature]*	9/13/00	T4-15						
		Safety									
		Env.									

18.	19.	20.	21. DOE APPROVAL (if required)
[signature] 9/13/00 Signature of EDT Originator Date	Authorized Representative Date for Receiving Organization	*[signature]* 9/13/00 Design Authority/ Date Cognizant Manager	Ctrl No. ___ ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments

BD-7400-172-2 (10/97)

BD-7400-172-1

AutoQuant 3, version 3.11, MIDAC Corporation
Computer Software Test Plan

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Fluor Hanford

P.O. Box 1000
Richland, Washington

AutoQuant 3, version 3.11, MIDAC Corporation

Computer Software Test Plan

S. T. Hurlbut
Fluor Hanford

Date Published
September 2000

Prepared for the U.S. Department of Energy
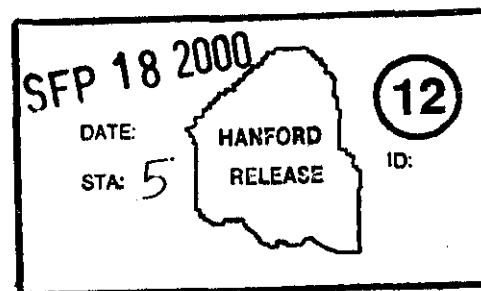Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

Fluor Hanford

P.O. Box 1000
Richland, Washington

SFP 18 2000

DATE:

STA: 5

HANFORD
RELEASE

ID:

(12)

Release Approval   9/14/00   Release Stamp
                 Date

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PLUTONIUM FINISHING PLANT ANALYTICAL LABORATORY

AutoQuant 3, version 3.11, MIDAC Corporation Computer Software Test Plan

E. W. Curfman, Fluor Hanford, Inc.

9/12/00
Date

G. A. Westsik, Fluor Hanford, Inc.

9/12/00
Date

Prepared by

S. T. Hurlbut, Fluor Hanford, Inc.

9/12/00
Date

TABLE OF CONTENTS

1.0   INTRODUCTION

1.1   Project Overview

AutoQuant is a vendor software product used to control the Fourier transform infrared spectrometer (FTIR) used as a detector for the supercritical fluid extraction system (SFE). This product acts as the operating environment for the FTIR. AutoQuant will be used in conjunction with procedure ZA-565-301, "Determination of Moisture by Supercritical Fluid Extraction and Infrared Detection."

1.2   Product Perspective

AutoQuant is a proprietary program provided by the MIDAC Corporation, vendor of the FTIR instrument.

2.0   TEST PLAN

2.1   Purpose

This test plan will be performed in conjunction with or prior to HNF-6936, "HA-53 Supercritical Fluid Extraction System Acceptance Test Plan", to operate the Fourier transform infrared spectrophotometer (FTIR) and to perform analyses for water. The test will ensure that the software can be installed properly, will operate the FTIR correctly and will generate a text file with analytical data.

2.2   Test Items

This test document is specifically written to test the installation and operation of the AutoQuant software in connection to the MIDAC FTIR.

2.3   Environmental Needs

AutoQuant will be installed on a computer meeting the hardware requirements in the MIDAC User's Guide including the MIDAC supplied interface board. The computer will be connected to the MIDAC FTIR.

2.4   Responsibilities

The scientist responsible for the analytical procedure, ZA-565-301, shall be responsible for preparing the test and resolving any test-related issues. The test shall be witnessed by a PFPAL team leader/manager.

3.0   Test Design

3.1   Test Cases

Test cases and their test items will be executed in the order they are numbered. Results of the testing process, including visually observable results (error message generated, aborts, and requests for operation action) and notes on the successful execution of the test will be documented in each test case; Pass/Fail notes will be indicated on the test cases. Test cases are included in Appendix A of this document.

Test incidents, with the disposition of any anomalies discovered during testing, will be documented. Test problems/deficiencies/defects need to be noted on a test incident report, indicating the specific item where the problem occurred. Test incidents are integral to the test cases and will be kept with the record copies of the test cases. A sample test incident report is included in Appendix B. Actual test incident reports will be included in Appendix C.

At the successful completion of all test cases, a Test Summary report will be prepared. The Test Summary Report is included in Appendix D.

3.2   Pass/Fail Criteria

Acceptance criteria state the conditions that must be satisfied by the system or product before the user formally accepts the system. If a test case achieves all of its requirements, it is considered a PASS. If a test case does not achieve all of its requirements, it is considered a FAIL and must be corrected and retested. If the test produces a result that is not desirable by the user or the user's management and it meets the requirements detailed in the test case, a decision must be made to either change the requirement and retest, or PASS the test.

3.3   Test Case Identifier

All test cases will be uniquely identified by a test case number. Each test item will also be numbered to provide a means of identifying anomalies.

3.4   Input Specifications

Test data will be developed or provided to thoroughly test all areas of the system. Where possible, this data will be identified in such a way that the correct outcome is known in advance. Effectiveness of the data will be ensured through joint participation by user personnel. Transactions that are specifically designed to check internal controls and decision logic will be included. Examples of invalid, abnormal, and incomplete transactions will be included in the test data. These transactions will be checked to verify that they work properly and give the appropriate responses to improper conditions.

3.5   Output Specifications

All elements within the system will meet or exceed the following requirements, as stated in the test cases.

- File data will be of documented length and type.
- Screens will be formatted and display/update data as documented.
- Reports will present data consistent with stated requirements.

3.6   Test Incident Report

Test incidents will be reported using the Test Incident report (See Appendix B). Required information is as follows:

- Test Case and test item numbers
- Date encountered
- Expected results
- Actual results
- Tester name
- Witness (if required)

These forms will be followed up with the users, users' manager and responsible scientist to determine course of action, which may include correction to the software or change to the requirement.

3.7   Test Summary

At the completion of the testing process, a test summary report will be completed (Appendix C). This report will evaluate and summarize the test results including the following:

- Identify the system and the items tested, indicating their revision identification.
- Indicate the environment in which the testing activities took place.
- State whether or not the system is ready for operation.
- Supply references to the following documentation if they exist: test plan, test design, test cases, and test incident report.

This Summary will also include a Test Verification Sheet to be signed by the appropriate persons to indicate the final validation and acceptance of the system.

4.0   REFERENCES

AutoQuant User's Guide, MIDAC Corporation, Irvine, CA

ZA-565-301, *Determination of Moisture by Supercritical Fluid Extraction and Infrared Detection*, Fluor Hanford, Inc., Richland, WA

HNF-6936, *HA-53 Supercritical Fluid Extraction System Acceptance Test Plan*, Fluor Hanford, Inc., Richland, WA

APPENDIX A – TEST CASES

TEST STEP	ACTION	EXPECTED RESULT	PASS/ FAIL	P/F ON RETEST
1.	Install software per vendor instructions.	The software installs.		
2.	Create a method for water.	Method is created without incident.		
3.	Perform Standard Collection	Spectral data will be collected.		
4.	Save data in a text file.	Text file will be created.		
5.	Create a full calibration curve.	Step 9.9 of HNF-6936 is completed successfully.		

Tester Initials _____
(this should appear on each test case page)

APPENDIX B - TEST INCIDENT REPORT SAMPLE

Incident Identification

| Incident No. | Date | Test Case No. | Item No. |

Description of Incident: (Identify expected results and actual results)

Determination

[ ]Fix Before Implementation   [ ]Fix After Implementation   [ ]Change in Scope

Action Taken:

Impact On Previous or Following Tests:

Incident Documented:

| Test Performer | Date |

| Test Witness | Date |

| Test Administrator | Date |

Correction Verified:

| Test Performer | Date |

| Test Witness | Date |

| Test Administrator | Date |

APPENDIX C – TEST INCIDENT REPORTS

Incident reports, if any will be generated at the conclusion of testing.

APPENDIX D – TEST REPORT

1.0   SUMMARY

Evaluate and summarize the test results. Identify the system and the items tested, indicating their revision identification. Indicate the environment in which the testing activities took place. State whether or not the system is ready for operation. Supply references to the following documentation if they exist: test plan, test design, test procedures, test item transmittal reports, test logs, and test incident report.

2.0   VARIANCES

Report any variances of the test items from their design specifications. Indicate any variances from the test plan, test designs, or test procedures during the testing. Specify the reason for each variance.

3.0   COMPREHENSIVE ASSESSMENT

Evaluate the comprehensiveness of the testing process against the acceptance criteria. Identify features or feature combinations that were not sufficiently tested, and explain the reasons.

4.0   SUMMARY OF RESULTS

Summarize the results of testing. Identify all resolved incidents, and summarize their resolutions. Identify all unresolved incidents and the impact on placing the system into operation.

5.0   EVALUATION

Provide an overall evaluation of each test item, based upon the test results. Provide an estimate of failure risk.

6.0   SUMMARY OF ACTIVITIES

Summarize the major testing activities and events. Summarize resource consumption data, for example, total staffing level, total machine time, and total elapsed time used for each of the major testing activities.

7.0   APPROVALS

Specify the names and titles of all persons who must approve this report. Provide space for signatures and dates.

_____   _____
Date

_____   _____
Date

_____   _____
Date