Meenakshi Thiyagarajan

Midterm - II

Software Quality Assurance and Testing: 3396

UCSC Extension

SYSTEM TEST PLAN

Per

IEEE 829 standards

Product Name: Accounts Payables System (APS)

Document History

Version	Name	Employee ID	Date	Comments
1.	Meena	QAT006	10/07/2016	Created the first draft based on the requirements
2.	Meena	QAT006	10/08/2016	Updated content of the entire document
3.	Meena	QAT001	11/01/2016	Modified contents of functions to be tested
4.				
5.				

Contents

Test Plan Identifier:

The identifier for this System Test Plan is the new Accounts Payable System (APS) and it runs on VAX system.

Throughout the testing process we will be applying the test documentation specifications described in the IEEE Standard 829-2008 for Software Test Documentation.

References:

- Business Requirements
- Development Code Review Minutes
- Accounts Payable System (APS) requirements document and user guide.
- General Ledger (GL) interface specification and GL user guide

Introduction:

1.1 Project Overview:

The new Accounts Payable System (APS) shall be an interactive online check printing system that will support both U.S. and foreign payees. System is available only to the company's intranet users. The system provides daily and weekly reports and interface with the General Ledger application. It supports user authentication and permissions based on job role.

The new Accounts Payable System (APS) could able to print checks with various payment information about the user and also could print greeting messages to the user. The new Accounts Payable System (APS) provides user with user name/password. It provides a menu option to review a check selected by the user and also have check preview option to display a preview of the printed check.

Objective:

- The purpose of this document is to provide the detail activities to conduct the system test on the new Accounts Payable System (APS) based on requirements document.
- Describe the activities required to prepare and to conduct the system test.

- Define the tools and the environment needed to conduct the system test.

Scope:

The following items are within the scope of this system test plan:

- Testing all the modules in new Accounts Payable System (APS).
- System testing of all test scenarios.
- Creation of Test Requirements, Test Cases and Test Sets in Quality Center
- Preparation of Test Data for executing the Test Cases.
- Test case Execution for 2 cycles and defect Tracking.
- Performance test
- Security test
- Document test
- Volume test
- Recovery test
- Interface with GL system

Assumptions:

Not Applicable

Test Items:

Identifying the test items is that basically specifies the things that are to be tested within the scope of this test plan:

- Usability
- User Authentication and Permission
- System Availability
- General System Operation
- Data Entry
- Check Printing
- Daily and weekly Reports
- Check Review
- Technical requirements
    - System Performance

- Hardware Requirements
- Software Requirements
- Interface Requirements

Functions to be tested:

At this level we are planning what are all the possible functional features need to be tested which includes,

Usability

- Verify the system is web based
- Verify the system is available only to the company's intranet users
- Support [M:100, D:150, B:200] simultaneous users
- Work compatible with the company's browser standard

Security:

The following accessibilities are need to be verified:

- All the users has Login with user name/password.
- Access only on company's intranet.
- User access based on job function (role) as described in the Table of Figures: 2
- Only Supervisors could review every check detail and allowed to edit unprinted checks and make corrections to all the fields.
- At the end of the day, the Chief Supervisor could print all the checks entered into the system
- Accountants are able to view checks but not modify them and also be allowed to generate daily and weekly reports.

System Availability

The following system availability are need to be verified:

- The availability of [M:99.5%, D:99.9%, B:100%] during work day.
- The system is available Monday through Friday for check printing between the hours of 8am through 5pm PDT/PST, inclusive.
- The System is unavailable on Saturday and Sunday for maintenance.
- System calendar week starts on Saturday at 00:01 AM and end on Friday at 12:00PM

Check Interface

- The interface between APS and GL application works properly
- Data transfer from APS to GL application occurs daily with the data fields specified in Table of Figures: 8

System performance

The following system performance are need to be verified:

- The system should have speedy response Time i.e., we have to verify if the printer prints in less than 2 sec.
- The System should print [M:8,700, D:10,000, B:15,000] checks per day.
- Volume testing for number of checks (boundary testing, 1, 8700, 32, 345, 7000, 12000).
- AP System should interface with the General Ledger Application, which runs on the VAX system.
- Accounts Payable System should run on the company's AS400 platform.
- Data transfer from APS to GL application occurs daily with the data fields specified in Table of Figures: 8

Data Entry

The following actions are need to be tested:

- Enter payment Information (Table of figures: 3)
- View payment information
- Edit payment information
- Enter greeting message (Table of figures: 4)
- Check greeting message

Printing Checks

The checks has following details that are need to be tested:

- Checks less than or equal to $1000 have one signature line
- Checks more than $1000 have two signature lines

- U.S. based payees need not print country information (Table of figures: 1.3)
- Payees outside of the U.S. should print the country information (Table of figures: 1.4)
- All checks display the amount in U.S. dollars in front of the amount value.
- All checks display a greeting message and the print date falls within the effective start and end dates
- The greeting message is centered at the top of the check (Table of figures: 1.5)

Reports

Daily Reports

The Daily report contains the below information are need to be tested:

- How many checks are paid
- Total amount paid
- Recipient's information
- Date of the check as per the format specified in Table of figures: 5.1

Weekly reports

The weekly report contains the below information are need to be tested:

- Prints the last working day's date generated by the system
- The total dollar amount that is paid out in that week as per the format specified in Table of figures: 5.2

Check Review

The APS provides following options are need to be tested:

- A menu option to review a check selected by the user (Table of Figures: 6)
- Preview option to display a preview of the printed check (Table of Figures: 8)

Controls for allowing users to navigate between checks:

- Option to navigate to a specific check number
- Option to page to the next 10 checks
- Option to page to the previous 10 checks

Functions not to be tested:

None

Test Strategy:

System Testing:

- System testing of APS will be done once the integrated system is provided by the development team to the testing team. System Integrating is done to evaluate the system's compliance with its specified requirements.
- We will be testing the APS on the whole by logging in as a specified user(s), enter data, print the checks, view the reports, test the user-interface.

Volume Test:

- Volume testing is a part of performance testing where software is subjected to a huge volume of data
- Test with the following number of simultaneous users: 1, 3, 19, 65, 95, 110, 179 and 200.
- Test with printing the following number of checks: 1, 17, 75, 300, 3000, 8700, 10000, and 15000.
- Test availability by running the system for the following number of simulated work days
  1, 3, 5, 10.
- Test the System is available [M: 99.5%, D: 99.9%, B: 100%] on work days.
- Test the system is compatible with the company Browser standard.
- Load Runner tool is employed for automated volume testing

Functional Testing:

- Functional testing is a way of checking software to ensure that it has all the required functionality that's specified within its functional requirements. Each and every feature is tested successfully.
- To test all functionality of data entry , daily reports and weekly reports.
- To test printing checks, reviewing checks.

Environment Test

- Environment testing is a process of testing the APS with each one of the supported software and hardware configurations.
- Test the Accounts Payable System run on the company's AS400 platform

- Test the AP System interface with the General Ledger Application, which runs on the VAX system
- The APS will be compatible with the company browser standard and must be tested using Internet Explorer, Mozilla Firefox, Google Chrome and Safari
- Test with paper checks

Security test:

- Security testing is performed to determine if APS protects data and maintains confidentiality as intended.
- Test all the users has Login with user name/password.
- Test that user access based on job function (role) as per Table of Figures: 2
- Test that only Supervisors could review every check detail and allowed to edit unprinted checks and make corrections to all the fields.
- Test that the Chief Supervisor could print all the checks entered into the system at the end of the day
- Test that the accountants are able to view checks but not modify them and also be allowed to generate daily and weekly reports.
- Test that access only possible on company intranet

Recovery testing

- Recovery testing is performed to determine how quickly the system can recover after it has gone through system crash or hardware failure. Recovery testing is the forced failure of the software to verify if the recovery is successful.

After an abnormal system shutdown due to power failure, test that the APS system:

- Loses at most the last 3 minutes of data
- Is up and running in less than 5 minutes in the event of power failure.

Documentation Testing

- Document testing involves testing of the documented artifacts that are usually developed before or during the testing of software.
- Document testing for APS will involve reviewing the Test Plan, Test Cases, Test Incident Report, Test Logs, Test Summary Report.

Dependencies:

- Code Handover by development to testing group on time mentioned in the schedule
- Environment—testing new AP system will be running on AS400.
- Hardware—printers to print checks.

Item Pass/Fail Criteria

The APS System must satisfy the standard requirements for system Pass/Fail specified in development standards and procedures:

Entry Criteria

- APS will be developed completely and available for testing
- Unit and Integration testing completed by Development Team
- Unit and Integration reports with list of issues resolved
- Code review meeting conducted by development team and meeting minutes
- Software testing environment closely resembling the production environment must be available
- Production like data will be present in the system prior to testing
- Test team has access to the Test Environment
- The link between APS and GL should be working
- Printer is in working condition and connected properly

Exit Criteria

- No Priority 1 or Priority 2 defects
- All P3-P5 (enhancements) defects have a documented resolution plan
- Execution of all test cases and completion of all system testing.
- A minimum of 2 test cycles (100% execution) is completed.
- 95% Pass Rate of all test cases
- Regression testing of defects fixed during system testing
- Completed Test Summary Report
- All defects logged in Quality Center

- QA sign-off on system test.

- Documented list of any outstanding (open) defects.

Suspension Criteria

If there are any defects which seriously impact the testing progress, then the Test Manager may choose to suspend the testing.

The following criteria specify the circumstances in which system testing has to be suspended -

- System contains one or more P1 issues that prevents complete system testing
- Unavailability of required hardware or software during testing phase

Resumption Requirements

In order to resume test activities that have been suspended due to criteria mentioned above.

The following criteria have to be met in addition to the entry again

- There are no open P1 issues
- Regression testing has passed

Test Deliverables

The following documents are the available test deliverables:

- System Test plan
- Test case specifications
- Test input and output data
- Test procedure specifications
- System test logs
- Daily Test Execution Report
- Defect Log and corrective actions.
- System test summary reports.

Testing Tasks

The remaining tasks to be done are:

- Prepare Test Plan
- Prepare Test Case Specifications
- Prepare Test Procedure Specifications
- Prepare Test Environment
- Execute Test Procedures

- Logging of defects
- Retesting and closing the defects
- Create final Test Report

Defect/Bug Tracking

The Bugs/Defect Tracking will be done through the HP Quality Center. It is the responsibility of the tester to identify defects, link to corresponding script, assign initial severity, retest and close the defect.

Defects reported will have proper steps to reproduce the defect, expected output, test data, error screenshot attached and any additional information on the defect.

Defects found will be categorized in the bug reporting tool according to the following criteria :

Bug Severity	**Impact**
P1 – High	This bug is a critical show stopper and prevents the product from being deployed to production
P2 – Medium	This bug causes a vital function failure with a valid workaround
P3 – Low	This bug is related to cosmetic changes with no impact on product functionality

Environmental Needs

The following list of software will be required in the System Test Environment:

QA URLs	Accounts Payable System -"http://localhost"
Software	HP Quality Center, 15 licenses
Hardware	Intel PCs , 10 No. ,7 printers, 50,000 blank checks
Interface	General Ledger application, which runs on the VAX system

Staffing and Training Needs

Staffing Needs	1 Test Manager 1 Senior Test Engineer 7 Test Engineers
Training Needs	HP Quality Care for test team QC for test team , Development team. APS and GL for test team

Roles and Responsibilities

These responsibilities are assigned to the following groups and individuals:

Test Manager:

- Arrange Staffing
- Arrange Training
- Arranging QA & Developer collaboration call
- Prepare Test Summary Report

Test Lead:

- Create Test Plan
- Makes sure all the testing processes goes
- Smoothly according to the plan
- Arranging internal QA Team status meetings.

Testers:

- Setup Test Environment
- Create Test Data
- Create Test Cases
- Test Execution
- Defect Reporting
- Retesting and closing the defect
- Provide APS training – IT Finance Technical Lead
- Provide GL training – General Ledger Accountant

Schedule

Test schedule plan is being scheduled as per table below:

S.No.	Activity Date	Start Date	End Date
1.	Writing Test Plan	Nov19, 2016	Nov 26, 2016
2.	Test Plan Review	Nov 29, 2016	Nov 30, 2016
3.	Writing Test Cases	Dec 01, 2016	Dec 8, 2016
4.	Test Case Review	Dec 9, 2016	Dec 10, 2016
5.	Gathering Test Data	Dec 13, 2016	Dec 17, 2016
6.	Testing Execution	Dec 19, 2016 [Code hand-over]	Jan 2, 2016
7.	Defect Reporting	Dec 19, 2016	Jan 2, 2016
8.	Test Summary Report	Jan 2, 2016	Jan 2, 2016

Control Procedures

- Minutes of Code review to be provided by Development Team to QA Team.
- Test Plan review
  Audience- QA Team, QA Lead and Manager, Dev Manager, Development Team
- Schedule- As per this release schedule, Test Plan review will be conducted on Nov 29, 2016 and Nov 30, 2016
- Test Case review
  Audience- QA Team, QA Lead and Manager, Development Team
  Schedule- As per this release schedule, Test Case review will be conducted on Dec 9, 2016 and Dec 10, 2016

Risks and Mitigation Plan

Risk	Probability	Risk Impact Level	Mitigation Plan
P1 issues blocking the test cycle	Low	High	Development Manager assigns the defects to respective developer and provides resolution at the earliest
Unable to test APS due to system failure	Medium	High	System Manager to assign senior engineer to assist in fixing the issue.
Lack of test personnel	Low	Medium	Test Manager will allocate temporary resources to compensate
Training Delay	Low	Medium	Utilize online and/or printed training methods until classroom training can be held

Approvals

APS System Test Plan should be reviewed, approved and signed off by the following stakeholders:

Name	Role	Approval Signature	Approval Date
Bob	Test Manager		
Steve	Development Manager		
Paul	APS Supervisor		
Rak	APS Accountant		
Rose	GL Accountant		
Carol	Controller		

Comments(if any):

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Glossary of Terms

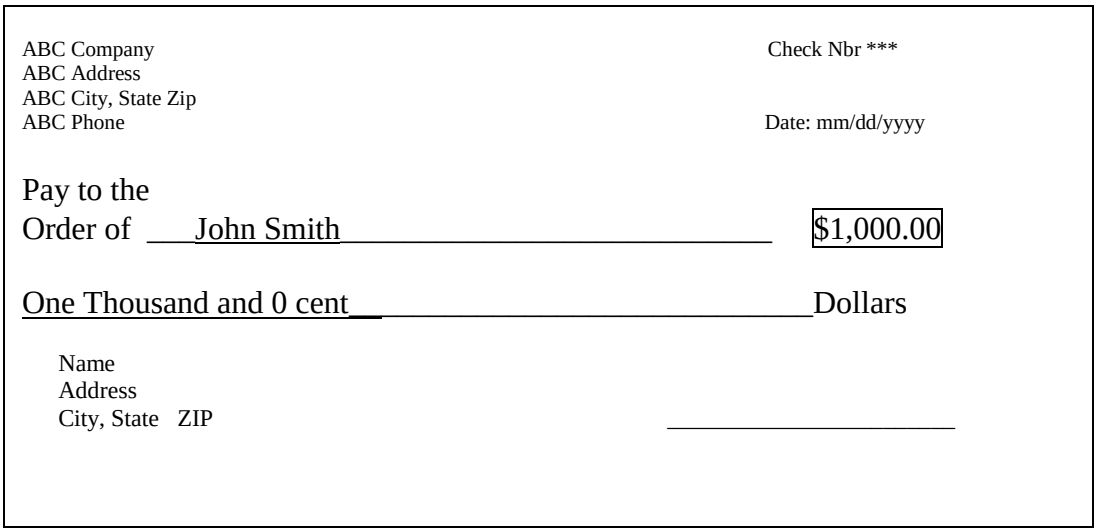
This section defines words and expressions used throughout this document.

Word/Expression	**Meaning**
AP	Accounts Payable
APS	Accounts Payable System
GL	General Ledger
VAX	Virtual Address extension
Dollar Box	This is the place on the check where the amount of the check is printed in numeric format, e.g. $500.00
Foreign Payees	Payees from country other than USA
[M:99.5%, D:99.9%, B:100%]	M- Morning: 7 am to 12 noon D -MidDay: 12 noon to 6 pm B –Batch print (unattended): 6 pm to 11 pm
P1, P2, P3	Priority 1 (issue), Priority 2 (issue), Priority 3 (issue)
QA	Quality Assurance

Table of Figures

1. Check Format

1.1. Country is U.S, Amount is $1,000 or less


ABC Company
ABC Address
ABC City, State Zip
ABC Phone

Check Nbr ***

Date: mm/dd/yyyy

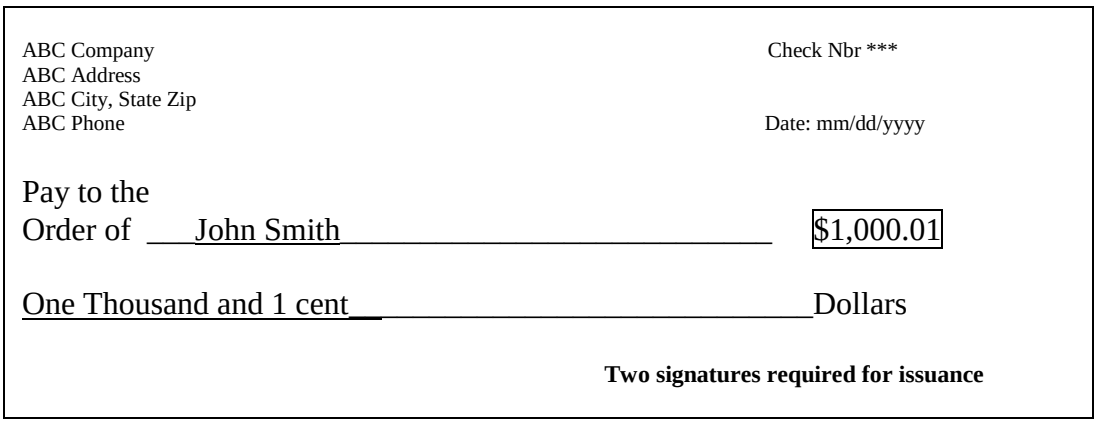
Pay to the
Order of ___John Smith_____ $1,000.00

One Thousand and 0 cent__ _____Dollars

Name
Address
City, State ZIP

_____

1.2. Country is U.S, Amount is greater than $1,000


ABC Company
ABC Address
ABC City, State Zip
ABC Phone

Check Nbr ***

Date: mm/dd/yyyy

Pay to the
Order of ___John Smith_____ $1,000.01

One Thousand and 1 cent__ _____Dollars

Two signatures required for issuance

Name _____
Address
City, State ZIP _____

1.3. Country is not U.S, amount is greater than $1000

ABC Company Check Nbr ***
ABC Address
ABC City, State Zip
ABC Phone Date: mm/dd/yyyy

Pay to the
Order of ___John Smith_____ $1,000.01

One Thousand and 1 cent__ _____Dollars

Two signatures required for issuance

Name _____
Address
City, State ZIP _____

1.4. Country is not U.S, amount is less than or equal to $1000

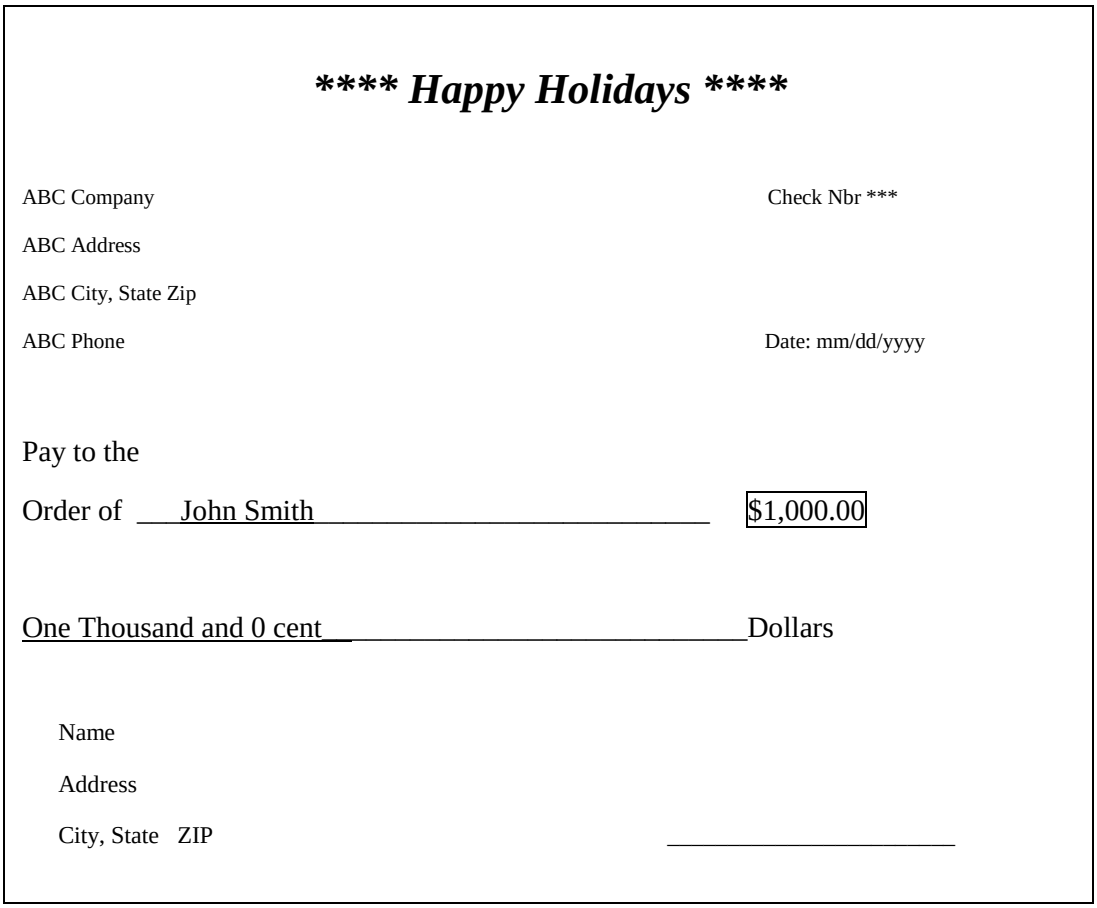
ABC Company Check Nbr ***
ABC Address
ABC City, State Zip
ABC Phone Date: mm/dd/yyyy

Pay to the
Order of ___John Smith_____ $1,000.00

One Thousand and 0 cent__ _____Dollars

Name
Address
City, State ZIP _____
Country

1.5. Check with Greeting Message



******* Happy Holidays *******

ABC Company — Check Nbr ***

ABC Address

ABC City, State Zip

ABC Phone — Date: mm/dd/yyyy

Pay to the

Order of ___John Smith_____ $1,000.00

One Thousand and 0 cent__ _____Dollars

Name

Address

City, State ZIP _____

2. Role Assignments

Role	Checks				Greetings		Print Reports
	Enter	View	Change	Print	Enter	Change	
Clerk	Yes	Yes			Yes	Yes	
Supervisor		Yes	Yes				
Chief Supervisor		Yes		Yes			
Accountant		Yes					Yes

3. Payment Information Data Entry screen

**** Payment Information Data Entry ****

Date: 04/30/2005 *(system captured date)*

Name: _____
Address: _____
City: _____
State: _____
ZIP: _____
Country: _____ (blank = USA)

Expense Account Number _____
Amount: $___.__

4. Greeting Message Data entry screen

**** Greeting Message Data Entry ****

Message: _____
Effective Date: MM/DD/YYYY
End Date: MM/DD/YYYY

5. Reports

5.1. Daily Report

Daily Report - 04/25/2005

Check Number	Payee	Amount
1057	Tom Dewey	$432.39
1058	Christine Kam-Lynch	$5,411.85
1059	Laura Quiroga	$1,844.09
1060	Gil Doron	$735.26
1061	Ganesh Thulasiraman	$11,246.10
1062	Ramesh Damisetty	$321.47
1063	Philippe Fossier	$876.00
1064	Lena Bedenok	$3,221.87
	Total	**$24,089.03**

Total Checks Printed: 8

5.2. Weekly Report

Weekly Report - 04/19/2005 through 04/25/2005

Weekly Total	**$75,321.46**

6. Check Review Listing

Check Review

Date	Check Number	Payee	Amount
4/27/2005	2223	Tom Dewey	$4,326.00
4/27/2005	2224	Christine Kam-Lynch	$3,290.45
4/28/2005	2225	Laura Quiroga	$135.18
5/3/2005	2226	Gil Doron	$6,721.55

5/3/2005	2227	Ganesh Thulasiraman	$1,421.84
5/4/2005	2228	Ramesh Damisetty	$578.92
5/4/2005	2229	Philippe Fossier	$72.90
5/5/2005	2230	Lena Bedenok	$437.68
5/6/2005	2231	Tom Jones	$724.16
5/6/2005	2232	Jane Doe	$12.47

Check Number [ ] **<Previous 10** **Next 10>**

7. Check Preview

Back **Edit**

******* Happy Holidays*******

ABC Company Check Nbr ***

ABC Address

ABC City, State Zip

ABC Phone Date: mm/dd/yyyy

Pay to the

Order of ___John Smith_____ $1,000.00

__One Thousand and 0 cent__ Dollars

Name

Address

City, State ZIP _____

8. Interface between APS and GL Application

The following data is moved from APS to GL application daily –

- Expense Account Number
- Check Number
- Check Date
- Payee's Name
- Payee's Address
- Payee's City
- Payee's State
- Payee's Country
- Payee's Zip Code
- Check Amount
- Check Prepared By

9. Data Element Definition

The following company standards are used for data elements that are collected and generated by APS –

- Free Form – there is no structure
- Alphabetic – Letters A to Z, inclusive and a space
- Alphanumeric – Letters A to Z, inclusive, numbers 0 to 9, inclusive and a space
- Numeric – Numbers 0 to 9, inclusive with a comma punctuation

Element	Definition	Size	Editing
Name	Payee's Name	40	Free form – Alphabetic
Address	Payee's address	50	Free form – no editing
City	Payee's City	25	Free form – no editing

Element	Definition	Size	Editing
State	Payee's State	2	Post office state code table
Zip	Payee's Postal code	10	USA format as 5 numeric dash and 4 numeric; otherwise free form
Country	Payee's Country	20	Country code table
Check Date	Date check is printed	10	Input and output formats are mm/dd/yyyy.
Check Number	Check Number is system generated from a 10,000 when system is started	8	Numeric
Expense Account Number	A number cross-referencing the expense to a Purchase Order or a Project	10	Alphanumeric