Y2K Test Plan for the Payroll/Personnel System

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1 Introduction

In 1995, in response to requests from campuses, the Payroll Maintenance group at UCOP initiated modifications to the Base Payroll/Personnel System (PPS) so that the system would properly process data where dates fell into the next century. Campuses were beginning to encounter the need to establish appointments and distributions ending in the year 2000 or later, as well as the need to input dates such as Visa or Work Permit end dates in the next century.

The PPS Y2K project resulted in the shipment of three releases of changes to PPS:

1. Release 1025 was shipped on 13 October 1995, and focused primarily on changes required by the batch and on-line file maintenance processes

2. Release 1087 was shipped on 25 September 1996, and focused primarily on changes required by the payroll computation processes

3. Release 1107 was shipped on 15 January 1997, and modified all remaining areas of PPS, bringing them into compliance with the Y2K requirements

Campuses have reported successful installation of these three releases. A few, minor, date-related problems have been reported and corrected with subsequent releases. It is important to note that once the releases were installed, campuses began to input dates which fell into the next century, where appropriate. For example, the majority of campuses now have appointments and distributions which are scheduled to end on a date after January 1, 2000. Other date fields, such as Separation Date and Leave Return Dates, are also beginning to show values past that date.

As the end of 1998 approaches, the Joint Operations Group (JOG) has requested UCOP to develop a test plan which will allow campuses to thoroughly test PPS from all aspects including

- Proper installation of the Y2K Releases
- Proper integration of the base Y2K changes with local campus modifications which may impact processing
- Interfaces between PPS and other systems, both internal to the University and external to it

Noting that some campuses have already moved toward setting up mainframe LPARs where the system clock can be set to allow testing through the transition between 1999 and 2000, JOG has further requested that the test plan be developed to take advantage of such LPARs.
1.1 Scope of Testing

Although the obvious primary focus of the testing of PPS is on the production of correct paychecks for the periods just before and just after the transition from 1999 to 2000, it is equally important to verify that all of the related processes and interfaces work properly. To that end, this test plan will exercise the following areas of PPS:

- Control Table Maintenance
- File Maintenance, both Batch and On-Line
- Daily Processing, including processing of transactions from the IVR- and Web-based New Hire and Salary Reduction Agreements, and the daily interface to the “IVR” database
- Payroll Computation, including Wells Fargo interface files for both Sure-pay and reconciliation and deduction registers (e.g. banks, unions, and credit unions)
- Range and Merit Processing
- Month-End Processing
  - Expense Distribution, including campus General Ledger interface
  - Insurance Carrier reporting, including carrier file interface
  - UCOP Interfaces, including UCRS, CPS, and BCS
  - Union Reporting, including CNA and UPTE
  - Financial Aid/Student Earnings Reporting
  - Month-end Deduction Registers
  - Personnel Reporting
- Other Periodic Reporting
  - Quarterly Tax Reporting
  - Annual Tax Reporting

1 The IVR processes were not tested in the first iteration due to time limitations and difficulty exchanging data outside the “time machine.”
2 Range and merit processes are both in flux at the present time, so they were not tested in the first iteration.
3 Due to transaction errors, the workstudy tests in the first iteration were not successfully run. These will be tested in a later iteration.
1.2 What is Not Being Tested

It is also important to acknowledge what this test plan is not designed to test. First of all, the major emphasis is on processes and functions which are date-driven or date-controlled. Processes, such as pure reporting processes, which are not date-oriented in some way are not included.

Secondly, no attempt is made to include a sufficient volume of employees and data to test page-breaking and other such aspects of the system, which are not, in some way, related to dates. The assumption is that aspects such as these are adequately exercised by normal production.

Finally, no attempt will be made to include all possible voluntary deductions, or all possible variations of benefits plans and coverage. Again, the assumptions are that normal production will exercise these options, and that the test cases used here will be sufficient to validate the general processes involved. In other words, of one health plan works, we’ll assume that all work.

2 Critical Period

The critical period for Y2K testing of PPS performance is the period December 1999–March 2000. This period tests PPS processing through the “millennium change” and also tests processing through the first quarter of 2000, including testing for proper recognition of 2000 being a leap year. There has been a great deal of confusion among software vendors over this latter point, and it is known that many computer programs contain faulty algorithms which fail to recognize 2000 as a leap year.

While payroll computation isn’t the only area of PPS requiring testing, the actual payroll cycles during these critical periods are very important to test thoroughly. Table 1 lists the thirteen compute cycles that end in the critical periods and for which testing is required:

Note that Monthly Arrears pay cycles are not included because they behave in exactly the same fashion as Monthly Current cycles, nor are Semimonthly cycles, which are only used by one campus, and always fall completely within a month, included. In executing this test plan, the Berkeley campus is encouraged to substitute their Semimonthly cycles for the Biweekly cycles which they do not run.

The “XX” (special) cycle was included for two reasons. First of all, such cycles are regularly scheduled by some campuses, and thus, should be exercised. Secondly, most, if not all, campuses do run a “special” cycle during the period covered by the testing, to do adjustments prior to completing tax reporting for the year just ended.

3 Test Employees

This Y2K test will not make use of the standard PPS test database. It is at once too large, having too many similar cases, and inadequate, since it lacks
Table 1: **Compute Cycles During Critical Period**

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Ends</th>
<th>Check</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW1</td>
<td>12/11</td>
<td>12/22</td>
<td>The last cycle for which all dates fall in 1999. This is also the final cycle for the tax year 1999 and for the fourth quarter of 1999.</td>
</tr>
<tr>
<td>MO1</td>
<td>12/31</td>
<td>1/1</td>
<td>The first cycle with a check date in 2000, although all of the work is performed in 1999. This is also the first cycle for the tax year 2000 and for the first quarter of 2000.</td>
</tr>
<tr>
<td>BW2</td>
<td>12/25</td>
<td>1/5</td>
<td>Also work in 1999, paid in 2000.</td>
</tr>
<tr>
<td>BW3</td>
<td>1/8</td>
<td>1/19</td>
<td>The only cycle for which time is split between the two years.</td>
</tr>
<tr>
<td>XX1</td>
<td>1/15</td>
<td>1/20</td>
<td>&quot;Special&quot; payroll cycle, which should include late pay and adjustments for cycles ending in both 1999 and 2000.</td>
</tr>
<tr>
<td>MO2</td>
<td>1/31</td>
<td>2/1</td>
<td>The first cycle falling completely in 2000.</td>
</tr>
<tr>
<td>BW4</td>
<td>1/22</td>
<td>2/2</td>
<td></td>
</tr>
<tr>
<td>BW5</td>
<td>2/5</td>
<td>2/16</td>
<td></td>
</tr>
<tr>
<td>BW6</td>
<td>2/19</td>
<td>3/1</td>
<td></td>
</tr>
<tr>
<td>MO3</td>
<td>2/29</td>
<td>3/1</td>
<td>This cycle ends on the &quot;leap day&quot;.</td>
</tr>
<tr>
<td>BW7</td>
<td>3/4</td>
<td>3/15</td>
<td>This cycle includes the &quot;leap day&quot;.</td>
</tr>
<tr>
<td>MO4</td>
<td>3/31</td>
<td>3/30</td>
<td>Included in Quarter 2 because of check date.</td>
</tr>
</tbody>
</table>

The very date-specific cases needed to perform adequate Y2K testing. What is needed for this particular test process is a small database, which allows proper and detailed verification of each and every step of the test, and which ensures testing of all date-specific areas of the system. To this end, an entirely new test population will be developed. The emphasis of this test population is to allow the testing to verify the date-specific aspects of the processes without attempting to exhaustively test other aspects. As an example, no attempt will be made in the Y2K test to have all possible combinations of benefits enrollments represented.

Parallel populations of test employees will be developed for the Monthly and Biweekly payroll cycles, with the obvious substitutions of appropriate dates and pay parameters. Employees in each population will fall into three distinct groups: (1) Baseline Employees, (2) Employees with prospective changes during the test cycle, and (3) Employees changed during the test cycle.

### 3.1 Baseline Employees

Baseline Employees are employees where the entire employment record is established prior to the beginning of the test cycle and where the employee has no changes made to the employment structure during the test cycle. Time input,
where required, is constant throughout the cycle.

These employees provide a “baseline” for the tests, verifying that for them, the millennium transition is a “non-event”; their pay continues regardless of the date change (note that their pay will change when year-end tax and benefits rates table updates are applied to the system, or if they are involved in a range adjustment or a merit adjustment).

Although there will be only a small handful of these employees in the test environment, they represent the vast majority of actual employees of the University.

These employees also provide a secondary benefit, in that employees in groups (2) and (3) will often be “clones” of these employees. Cloning eliminates the individual variability in the tests, allowing reviewers to focus solely on the specific changes that were made for testing purposes.

3.2 Employees with Prospective Changes

These are employees where the entire employee record is once again established prior to the beginning of the test cycle and where the employee has no changes made during the test cycle. However, the pre-established records for the employee contain one or more date-driven changes which will become effective during the period of testing.

As was the case for Baseline Employees, time input, where required, for these employees is constant during the cycle with the exception of the obvious changes, such as no time input prior to the employee becoming active.

3.3 Employees with Active Changes

Employees with Active Changes are those who will have changes made to their record during the testing period, or who will actually be hired during the testing period. These employees provide a two-fold benefit.

First of all, the changes being made allow verification that both batch and on-line file maintenance, as well as batch and on-line time reporting properly handle dates through the Y2K transition period.

Secondly, the changes mirror the kinds of immediate changes campuses will be making during the actual transition period and verify that pay for these employees is properly handled.

4 Test Environment Assumptions

The following assumptions are made:

- Testing is being run in an LPAR where the System Date can be set to a desired value.
The LPAR in which the testing is done has been loaded with the production PPS code, and includes both a batch environment and a properly-configured CICS region.

The System Date in the LPAR can be advanced as necessary during the testing sequence.

The “Daily” process will only be run at the defined points in the testing schedule, taking advantage of the ability of this process to “catch up” on days when it is not run.

The initial databases have been loaded with data appropriate to the beginning of Y2K testing, that is to say that all tables contain values which would be reasonable as of December 1, 1999.

All processing for November, 1999, has been completed and Monthly Periodic Maintenance to begin December, 1999, has been performed.

The results from all employees paid in compute cycles with November, 1999, pay period end dates are available for comparison.

## 5 Test Schedule

The following schedule shows the planned order of execution for the complete Y2K PPS test cycle. This table shows only the major steps and the PPS processes that are being run. A very detailed run log for each iteration will be available on the web as iterations are completed. To ensure comparable results, the steps should be performed in the given order and the results from one step should be completely validated before continuing with the next.

It may be assumed that the “clock continues to run” between the indicated IPL points, and that several calendar days may actually elapse. Dates used, especially for the “daily periodic maintenance” cycles must be adjusted to correspond to actual calendar days.

1. IPL: Set System Date to 12/14/1999, 0800
2. Load all startup databases
3. Execute Control Table Update process CTL1
4. Execute Periodic Maintenance Process PM1 (daily) for 12/17/1999
5. Execute EDB File Maintenance process FM1
6. Execute Periodic Maintenance Process PM1A (daily) for 12/21/1999
7. Execute Payroll Compute Process BW1

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4These updates establish parameters necessary for testing purposes and set the benefits rates which become effective with December, 1999, earnings
8. Execute Quarterly Reporting Process QR1
9. Execute Annual Reporting Process AR
11. Execute Periodic Maintenance Process PM2B (Q1/CY)
12. Execute Control Table Update process CTL2
13. Execute EDB File Maintenance process FM2
14. IPL: Set System Date to 12/24/1999, 0800
15. Execute Periodic Maintenance Process PM3 (daily) for 12/24/1999
16. Execute Payroll Compute Process MO1
17. Execute EDB File Maintenance process FM3
18. Execute Payroll Compute Process BW2
19. IPL: Set System Date to 12/31/1999, 2200
22. Execute Monthly Reporting Process MR1
24. Execute Periodic Maintenance Process PM7 (M01)
25. IPL: Set System Date to 1/13/2000, 0800
26. Execute Periodic Maintenance Process PM8 (daily) for 1/14/2000
27. Execute EDB File Maintenance process FM4
28. Execute Payroll Compute Process BW3
29. IPL: Set System Date to 1/26/2000, 0800
31. Execute Payroll Compute Process XX1

5This update establishes the year 2000 Federal and State Tax withholding tables. It is
actually a three-step process due to the deletion of the tax tables.
6This process runs on 12/31, after noon. The clock will be allowed to run through midnight
and into 1/1/2000.
7This process runs on 1/1, anytime after midnight. NOTE: This cycle was not run in the
first iteration.
8XX Compute NOT run in the first iteration
32. Execute Payroll Compute Process MO2
33. Execute EDB File Maintenance process FM5
34. Execute Payroll Compute Process BW4
35. Execute Monthly Reporting Process MR2
37. Execute Periodic Maintenance Process PM10B (M02)
38. IPL: Set System Date to 2/10/2000, 0800
40. Execute Payroll Compute Process BW5
41. IPL: Set System Date to 2/24/2000, 0800
42. Execute Periodic Maintenance Process PM12 (daily) for 2/24/2000
43. Execute EDB File Maintenance process FM7
44. Execute Payroll Compute Process BW6
45. Execute Payroll Compute Process MO3
46. IPL: Set System Date to 2/28/2000, 2300
47. Execute Periodic Maintenance Process PM13 (daily) for 2/29/2000
50. Execute Periodic Maintenance Process PM17 (M03)
51. IPL: Set System Date to 3/01/2000, 1500
53. Execute Periodic Maintenance Process PM16 (M03)
55. Execute Payroll Compute Process BW7
56. IPL: Set System Date to 3/23/2000, 0800
58. Execute Payroll Compute Process BW8

This process runs on 2/28. The clock will be allowed to run through midnight, into 2/29.
59. Execute Payroll Compute Process MO4

60. Execute Quarterly Reporting Process QR2

61. Execute Periodic Maintenance Process PM19 (Q2)