Report of Independent Accountants

and

Independent Verification and Validation (Y2K)

Documents Pertaining to the

Credit Subsidy Calculator

This file contains several documents relating to the Report of Independent Accountants and Independent Verification and Validation (Y2K) of the Credit Subsidy Calculator (CSC). PricewaterhouseCoopers LLP (PWC) performed an attestation engagement to provide assurances about the methods employed by the CSC to calculate total subsidy costs for Government credit programs. In addition, PWC provided assurance about Y2K concerns using agreed-upon procedures. Through a separate contract, Kathpal Technologies, Inc. performed additional Y2K testing of the CSC. The following documents are contained in this file:

1. Office of Management and Budget (OMB) assertion letter;

2. PWC's "Report of Independent Accountants" regarding the OMB assertion, which found:

   > In our opinion, management's assertion that the CSC software uses methods described in the [Management's Statement Relating to the Credit Subsidy Calculator] to calculate total subsidy costs that are consistent with the specifications for such calculations set forth in the aforementioned requirements is fairly stated, in all material respects, based on the criteria in the accompanying "Management's Statement Relating to the Credit Subsidy Calculator;"

3. PWC's "Report of Independent Accountants on Applying Agreed-upon Procedures" defines the agreed-upon procedures for evaluating the CSC's Y2K related processes and reports PWC's findings;

4. Independent Verification and Validation report regarding year 2000 compliance for the CSC prepared by Kathpal Technologies. Inc. in conjunction with their evaluation of OMB's MAPS systems.

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

December 2, 1999

Ms. Patti Fisher
PricewaterhouseCoopers LLP
1616 North Fort Myer Drive
Arlington, VA 22209-3195

Dear Ms. Fisher:

The management assertions regarding the Credit Subsidy Calculator, dated November 26, 1999, are enclosed.

Sincerely,

Richard P. Emery, Jr.
Assistant Director for Budget Review

Enclosure

Management's Statement Relating to the Credit Subsidy Calculator

Background

The purposes of the Federal Credit Reform Act of 1990, as amended in the Balanced Budget Act of 1997 (FCRA), are to:

1. Measure more accurately the costs of Federal credit programs;
2. Place the cost of credit programs on a budgetary basis equivalent to other Federal spending;
3. Encourage the delivery of benefits in the form most appropriate to the needs of beneficiaries; and
4. Improve the allocation of resources among credit programs and between credit and other spending programs.

-Federal Credit Reform Act of 1990, Section 501

In addition to the FCRA, Office of Management and Budget (OMB) Circulars A-11 and A-34 provide further guidance for the treatment of Federal credit programs in the Federal budget. Accounting standards are provided in Statement of Federal Financial Accounting Standards No. 2, *Accounting for Direct Loans and Loan Guarantees* (SFFAS No. 2).

OMB has statutory responsibility for coordinating the calculation of the subsidy estimates by Federal credit agencies to better measure the cost of Federal credit programs. OMB has developed a credit subsidy calculator (CSC) to provide Federal credit agencies with a uniform method to compute the total subsidy cost so that agency staff can focus on preparing complete and accurate cash flow estimates.

The reliability of the results generated by the CSC is dependent on three factors:

1. The preparation of complete and accurate estimated disbursements and collections (cash flow estimates) for credit programs by knowledgeable agency staff. The cash flow estimates must be properly organized in an electronic spreadsheet. This task is the responsibility of the agency implementing the program with consultation and, in some instances, review and approval, from OMB. (See Appendix A.)

2. The accuracy of the calculations embedded in the CSC to generate the total subsidy cost and subsidy cost components from agency supplied cash flows. OMB is responsible for ensuring that the CSC correctly calculates the total subsidy cost from the data supplied by agencies.

3. The proper installation and control of the CSC by agencies to ensure that the file is not modified or corrupted.

Management's Assertion

Management asserts that the CSC software, dated November 26, 1999, uses the methods described below in calculating total subsidy cost and that the methods are consistent with the specifications for such calculations defined in the FCRA, OMB Circulars A-11 (dated July 12, 1999) and A-34 (dated October 19, 1999), and SFFAS No. 2.

Methods:

a. The FCRA, OMB Circulars A-11 (dated July 12, 1999) and A-34 (dated October 19, 1999), and SFFAS No. 2 define the cost of a direct loan or loan guarantee as the estimated long-term cost (on a net present value basis determined at the time a loan is disbursed) to the Federal government of direct loans and loan guarantees. This cost, which is hereinafter referred to as the total subsidy cost, excludes administrative costs and any incidental effects on government receipts or outlays. The CSC calculates the total subsidy cost to the Federal government, as stated, as the net present value of agency-provided direct loan or loan guarantee cash flows.

b. The FCRA was amended in the Balanced Budget Act of 1997 to read:

> In estimating net present values, the discount rate shall be the average interest rate on marketable U.S. Treasury securities of similar maturity to the cash flows of the direct loan or loan guarantee for which the estimate is being made (Section 502 5(e)).

The *Balanced Budget Act of 1997, Conference Report to Accompany H.R. 2015*, July 30, 1997 provides a more detailed description of the discounting method:

> Amendments to section 502 clarify the definition of the term "cost," to including a modification of the requirement concerning the "discount rate" used to determine cost so that it is based on the timing of the cash flows, as opposed to the term of the loan. Under this approach, a claim payment that will occur in year 1 of a guaranteed loan is discounted using the rate on a 1-year Treasury security, while a claim payment that will occur in year 30 is discounted using the rate on a 30-year Treasury security. The total cost is the sum of the present values of each year's cash flows over the life of the direct loan or loan guarantee.

OMB Management interprets the "interest rate on marketable U.S. Treasury securities" to be the effective annual yield of the *spot rate* on a *zero-coupon bond*, with a similar remaining term to maturity as the period of the cash flows. The basket-of-zeros method uses this defined interest rate as the discount rate when estimating net present values for total subsidy cost. The CSC calculates the total subsidy cost using the basket-of-zeros method.

c. The FCRA Section 505(c) stipulates that interest paid on Federal credit agency borrowings and interest earned on Federal credit agency deposits is calculated at

the same interest rate, effectively, as the rate used to discount cash flows for subsidy cost estimates. Because the basket-of-zeros method consists of multiple discount rates, the CSC uses an OMB developed calculation of a "single effective rate" for the practical purpose of calculating interest on borrowings and deposits in the financing account. This "single effective rate," when used as a discount rate, results in the same subsidy percentage as the basket-of-zeros method.

In certain instances, a single effective rate that will result in the same subsidy percentage as the basket-of-zeros method does not exist. In these instances a weighted-average spot rate in effective annual yield terms is used as the single effective rate. In other instances the calculated single effective rate is less than the lowest (or greater than the highest) spot rated used in the basket-of-zeros calculation of present value factors. Therefore the lowest (or highest) spot rate converted to effective annual yield terms is used as the single effective rate.

See Appendix B for a further explanation of approximating the single effective rate and its implications.

d. The FCRA (Sections 502 (B) and (C)) requires that the cost of direct loans and loan guarantees be discounted to the time the loan is disbursed. The CSC discounts cash flows to the time of loan disbursement using discount rates as described in method "b" above.

e. The SFFAS No. 2 requires that certain components of the subsidy costs be shown in the financial reporting of Federal credit agencies. The CSC calculates and displays the total subsidy components as described:

Financing/interest subsidy cost component is defined as the portion of the subsidy attributable to subsidizing the borrower's interest costs by charging lower rates than the discount rate (in certain direct loan programs) or by direct interest subsidy payments (in certain loan guarantee programs). For direct loans, this is calculated as the excess of the amount of the loans disbursed over the present value of the interest and principal payments required by the loan contracts. For loan guarantees, this is calculated as the present value of estimated interest supplement payments, before adjustment for defaults.

Defaults, net of recoveries, subsidy cost component is defined as the portion of the subsidy attributable to defaults, net of recoveries. It is calculated as the sum of discounted cash flows for defaults and recoveries.

Fee subsidy cost is defined as the portion of the subsidy costs attributable to up-front and annual fees paid to the government. Because these fees are inflows to the U.S. Government, this subsidy costs component makes subsidy costs either less positive or more negative. It is calculated as the sum of the discounted fee-related cash flows, before adjustment for defaults.

Other subsidy cost is defined as the residual subsidy cost not attributed to financing, defaults net of recoveries, or fees. It is calculated as a residual.

Appendix A

Responsibilities of those using the CSC

The organizations and individuals that use the CSC for Federal budget or financial reporting purposes are responsible for properly installing and using the CSC. These responsibilities include, but are not limited to, the following:

1. Ensuring that there are no errors, omissions, or defects in the inputs that would materially distort the calculations made by the CSC. Though the CSC provides messages to identify certain instances where input data items may be questionable, these messages are for informational purposes. OMB management makes no assertion that the CSC tests all potential error conditions or that the absence of error messages, in any way, is an endorsement of the inputs or an indication of their quality or acceptability;

2. Correctly installing the calculator, ensuring that it has not been corrupted, ensuring that access is appropriately controlled, providing an appropriate level of computer security, and ensuring that system date and time values are set correctly;

3. Choosing the appropriate scale (e.g., millions of dollars or thousands of dollars) for cash flow values. In particular, subsidy percentages may be distorted when a large scale, such as millions of dollars, is used and the cash flow estimates are generally in magnitudes of a few thousand dollars and are rounded so that they have few significant digits. In such instances, the resulting subsidy may differ significantly from a subsidy calculated from cash flows with more significant digits. In all instances where such distortions might occur, it is the responsibility of the individual or organization preparing the cash flow estimates to use a scale with a sufficient number of significant digits;

4. Choosing the appropriate level of detail for cash flows (whether to use aggregated cash flows that combine disbursement years or to use individual disbursement year cash flows); and,

5. Choosing the appropriate frequency for cash flows (whether to use monthly, quarterly, semiannual, or annual frequencies) with the understanding that the aggregation of cash flows may yield approximate, rather than exact, results.

Appendix B

Limitation regarding terminal balances in financing accounts

Under certain circumstances the results of the CSC can produce a non-zero balance in the financing account (an account with the U.S. Treasury) at the end of the cohort's term. These circumstances include:

- The effects of rounding of the subsidy percentage and single effective rate;
- An inaccuracy when the exact single effective rate cannot be calculated (or is less than the smallest or largest spot rate used in the basket-of-zeros present value calculations for the cohort);
- A calculation inaccuracy when disbursements occur in two or more time periods

The subsidy percentage and single effective rate are typically reported to two and four decimal places, respectively. If the true subsidy percentage or single effective rate contains more than the reported decimal places, a small balance may result at the end of a cohort's term. Similarly, if an exact single effective rate cannot be calculated (or is less than the smallest or largest spot rate used in the basket-of-zeros present value calculations for the cohort), interest on earnings or debt will accrue at a rate different from the rate the cash flows are being discounted. This difference will result in a non-zero balance at the end of the cohort's term.

The third circumstance is a calculation inaccuracy that occurs when a direct loan or guaranteed loan is disbursed over two or more time periods. OMB conducted sensitivity tests that indicated that the effect of this inaccuracy is immaterial. OMB decided that delaying the release of the CSC to correct this inaccuracy was not warranted.

This inaccuracy is the result of the averaging of credit subsidy rates for individual disbursement years. The CSC calculates the subsidy percentage as net present value of the sum of each disbursement period's cash flows discounted to the time of disbursement divided by the sum of the undiscounted disbursements. Calculated in this way, the subsidy percentage is a disbursement-weighted average of the credit subsidy percentage in each disbursement year. Because the compounding of interest is a non-linear function and the disbursement-weighted average is a linear function, a small discrepancy will arise when interest earnings on the subsidy transfer are calculated.

This inaccuracy can be fixed for programs that have loan disbursements in two or more periods. First, the cash flows should be discounted to the period of first disbursement. Second, the previously undiscounted disbursements should be discounted to the period of first disbursement. With these refinements, the residual balance in the financing account would be zero, because the amount of time that each subsidy transfer would earn interest would be taken into account in calculating the composite subsidy rate.

Making this correction would require substantial changes to the CSC's output displays and would result in delaying the release of the CSC. OMB's testing revealed that the

magnitude of this inaccuracy is immaterial and did not warrant delaying release of the CSC. This inaccuracy is noted rather than corrected in this release.

PRICEWATERHOUSECOOPERS

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REPORT OF INDEPENDENT ACCOUNTANTS

To the Office of Management and Budget

We have examined management's assertion, included in the accompanying "Management's Statement Relating to the Credit Subsidy Calculator"(Statement) about the methods that the Office of Management and Budget (OMB)'s Credit Subsidy Calculator (CSC), dated November 26, 1999, uses to calculate total subsidy cost. Management is responsible for ensuring that the CSC follows methods that are consistent with the Federal Credit Reform Act of 1990, Statement of Federal Financial Accounting Standards No. 2, *Accounting for Direct Loans and Loan Guarantees*, OMB Circulars A-11 *Preparation and Submission of Budget Estimates* (dated July 12, 1999) and A-34 *Instructions on Budget Execution* (dated October 19, 1999). Our responsibility is to express an opinion on management's assertion that the CSC uses these methods based on our examination.

Our examination was made in accordance with attestation standards established by the American Institute of Certified Public Accountants and *Government Auditing Standards*, issued by the Comptroller General of the United States, and, accordingly, included examining, on a test basis, evidence about OMB's assertion regarding the methods used by the CSC to calculate total subsidy cost, and performing such other procedures as we considered necessary in the circumstances. We believe that our examination provides a reasonable basis for our opinion. Our examination does not provide a legal determination of the methods used by the CSC.

In our opinion, management's assertion that the CSC software uses methods described in the Statement to calculate total subsidy cost that are consistent with the specifications for such calculations set forth in the aforementioned requirements is fairly stated, in all material respects, based on the criteria in the accompanying "Management's Statement Relating to the Credit Subsidy Calculator."

This report is intended solely for the information and use of the management of OMB and is not intended to be and should not be used by anyone other than this specified party. However, this report is part of the public record and its distribution is not limited.

PricewaterhouseCoopers LLP

December 2, 1999

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REPORT OF INDEPENDENT ACCOUNTANTS ON APPLYING AGREED-UPON PROCEDURES

To the Office of Management and Budget

We have performed the procedures enumerated below, which were agreed to by OMB, solely to assist you in evaluating whether the Office of Management and Budget (OMB)'s Credit Subsidy Calculator (CSC), dated November 26, 1999, is designed to mitigate against problems in processing date data on December 31, 1999 and January 1, 2000.

This agreed-upon procedures engagement was performed in accordance with standards established by the American Institute of Certified Public Accountants and *Government Auditing Standards*, issued by the Comptroller General of the United States. The sufficiency of these procedures is solely the responsibility of the specified users of this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

The procedures we performed and the related findings are set forth below:

1. Procedure: Used software search procedures to identify in the CSC source code to whether date formats impact the calculation of present value factors and the calculation of the credit subsidy rates.

   Finding: We noted that the CSC uses dates to select the U.S. Treasury yield curve assumptions and the initial cash flow period; however, dates do not otherwise impact the formulas for the calculation of the present value factors or the calculation of the credit subsidy rates.

2. Procedure: Entered 20 date-formatted and numerical-formatted inputs into the CSC input file using two digit and four digit years to determine whether or not the different data formats affected the output on the calculations of present value factors and credit subsidy rates.

Finding: No effects of the different date formats were found as a result of applying the procedures.

3. Procedure: Ran the CSC using 4 internal computer clock settings for the calendar years 1999, 2000 and 2038 to determine the impact of computer clock settings on the calculation of the present value factors and the calculation of the credit subsidy rates.

   Finding: We noted that a display error occurs when the computer clock is set to a date after January 18, 2038. After this date, the "Run date/time" stamp on each of the views in the credit subsidy calculator will not display. The issue arises from an industry standard data type established by the American National Standards Institute (ANSI). Operating problems may arise if the computer clock is set to any date after January 18, 2038 in executable files that use the 32-bit ANSI C time_t data type because the maximum number of seconds that can be stored in the time_t value will be reached by that date.

We were not engaged to, and did not, perform an examination, the objective of which would be the expression of an opinion on certain aspects of the CSC's calculation of credit subsidy after December 31, 1999. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

We are not providing any representation or warranty regarding the OMB's or any other person's or entity's success in achieving Year 2000 Compliance, including without limitation: (i) that any computer system or application is or will become Year 2000 Compliant; (ii) that every Year 2000 Compliance issue will have been identified during the Services; (iii) that any inventory of systems with Year 2000 Compliance problems will be complete or will not have to be modified in the future; (iv) that computer systems and applications will be error free or will not fail as a result of changes made to them to achieve Year 2000 Compliance. Note that "Year 2000 Compliance" means that systems or applications will be capable upon installation of accurately processing, providing and/or receiving date data after December 31, 1999, including leap year calculations.

This report is intended solely for the use of the management of OMB and should not be used by those who have not agreed to the procedures and taken responsibility for the sufficiency of the procedures for their purposes.

PricewaterhouseCoopers LLP

December 2, 1999
Arlington, Virginia

Executive Office of the President
Modeling, Analysis and Photocomposition Support (MAPS)
(OMB-0025)

Contract No. CI9C05

IV&V Plan

Final

Submitted to:
The Executive Office of the President
Office of Administration
New Executive Office Building
725 17th Street N.W.
Washington, D.C. 20503

Submitted by:
Kathpal Technologies, Inc.
2230 Gallows Road, Suite 380
Dunn Loring, Virginia 22027
(703) 573-7791

November 1, 1999

1.4.4 Completed Y2K Application Certification Checklist (Credit Subsidy)

YEAR 2000 COMPLIANCE CHECKLIST

The purpose of this checklist is to aid system managers in ensuring that their systems are compliant for the Year 2000. The following items are included in Year 2000 testing process for all of the owned, licensed, or otherwise employed hardware, software, databases, and firmware used in operations. This includes mission-critical applications, systems, and networks, and other Information Technology (IT) —controlled devices. Make sure the following items are included in Year 2000 testing and compliance process.

All EOP systems, networks, and/or databases must accurately process date/time data from, into and between the twentieth and twenty-first centuries and the leap year calculations. Y2K compliant systems must not encounter extended semantics, calendar errors, data or register overflow, or inconsistent computation, precedence, or sorting problems.

SYSTEM INFORMATION
(An asterisk indicates an optional question)

F.1 Provide System information.

Item #	Information Required	Narrative Response
1.a	Name of system, network, or database	Credit Subsidy Calculator
1.b	Operational date of system, network, or database*	N/A
1.c	Planned or actual replacement date of system, network, or database (retirement or discontinuation qualifies as replacement)*	N/A
1.d	For planned replacements, or retirement, what is the contingency plan and under what conditions will it be invoked?*	N/A
1.e	What, if any, are the safety critical portions of the system, network, or database*	none

YEAR 2000

F.2 Each system has its own window of time, before and after the present date, in which it functions. Planning and scheduling systems work with dates that are weeks, months, and sometimes years in the future. Likewise, trend analysis systems and billing systems regularly

reference dates in the past. For this system, and its window of time, please verify its ability to successfully process data containing dates with no adverse effect on the application's functionality and with no impact on the customer or end user beyond adjustment to approved changes in procedures and data formats.

Item #	Date Information	Not Tested	Verified	No	N/A
2.a	Dates in 20th century (1900s)		11/2/99		
2.b	Dates in 21st century (2000s)		11/2/99		
2.c	Dates across century boundary (mix 1900s and 2000s)		11/2/99		
2.d	Crosses 1999 to 2000 successfully		11/2/99		

OTHER/INDIRECT DATA USAGE

F.3 Have You Verified Performance (and corrected if necessary)?

Item #	Date Information	Verified	No	N/A
3.a	Dates embedded as parts of other fields			x
3.b	Dates used as part of a sort key			x
3.c	Usage of values in date fields for special purposes that are not dates (e.g., using 9999 or 99 to mean "never expire")			x
3.d	Date dependent activation/deactivation of passwords, accounts, commercial licenses			x
3.e	Date representation in the operating system's file system (creation dates and modification dates of files and directories)			x
3.f	Date dependent audit information			x
3.g	Date dependencies in encryption/decryption algorithms			x
3.h	Date dependent random number generators			x
3.i	Date within back-up, archived, reference, and transaction history files, maintenance logs, etc.			x
3.j	Date dependencies in firmware			x
3.k	Personal Computer BIOS and RTC does not reset the year to 1980 or 1984 on reboots after 31 December 1999 *(corrections by operating system utilities allowed)*			x

LEAP YEAR

F.4 System Accurately Recognizes and Processes Year 2000 as a Leap Year.

Item #	Data Information	Verified	No	N/A
4.a	February 29, 2000 is recognized as a valid date	11/2/99		
4.b	Julian date 00060 is recognized as February 29, 2000			x
4.c	Julian date 00366 is recognized as December 31, 2000			x
4.d	Arithmetic operations recognize Year 2000 has 366 days			x

USAGE OF DATES INTERNALLY

F.5 Internal Application Usage of Dates and Date Fields Must Be Clear and Unambiguous in the Context of the Systems Which Use Them.

Item #	Date Information	Verified	No	N/A
5.a	Display of dates is clear and unambiguous (the ability to correctly determine to which century a date belongs either by explicit display, i.e., 4-digit year, or by system, network, database or user inference)	11/2/99		
5.b	Printing of dates is clear and unambiguous	11/2/99		
5.c	Input of dates is clear and unambiguous	11/2/99		
5.d	Input of logically correct dates	11/2/99		
5.e	Storage of dates is clear and unambiguous	11/2/99		

EXTERNAL SYSTEM INTERFACES

F.6 External Interactions are Identified and Validated to Correctly Function for All Dates.

Item #	Data Information	Verified	No	N/A
6.a	Interaction between this system, network, or database and any other external time source, if existing, has been verified for correct operation.			x
	For example, the GPS system is sometimes used			x

	as a time source. Many GPS receivers cannot correctly deal with the roll-over of the GPS 10-bit epoch counter that will occur at midnight, 21 August 1999. GPS receivers also deal with an 8-bit Almanac Week counter which has a 256 week roll-over span.			
6.b	You and the responsible organization for each interface have negotiated an agreement (Memorandum of Agreement, Interface Control Document, or applicable standard (message, format, or protocol)) dealing with Year 2000 issues.			x
	For example, is the interface currently Y2K compliant, is it being worked on, does it have an unknown fix date, or will it be fixed by a future date you have mutually agreed on?			x
	For each data interchange or interface that exchanges year or date data, you and the corresponding organization(s) have verified that the agreed upon method or applicable message or protocol standards will correctly work for date data passed between your systems, networks, or databases.			x

DATE FIELD TYPE

F.7 Describe the Type of Date Fields Used by the System, in Either Software or Data Bases.

Item #	Date Information	Verified	No	N/A
7.a	Does the system use 4 digit year data fields?	11/2/99		
7.b	Does the system use 2 digit year data fields?		x	
7.c	If 2 digit, does the system use a century logic technique to correctly infer the century?		x	
7.d	At what date will the century logic fix fail?	x		
7.e	Are there any internal data types for computation or storage of year data or date data?	Yes: x		No:

If yes to F.7.e, what is the range of dates that the date field can represent?

Minimum Date	1/1/1980	Maximum Date	1/18/2038

YEAR 2000 TESTING INFORMATION

F.8 Optional: Provide the Following Information for All Year 2000 Compliance Tests that are Conducted, i.e., System Test, Integration Test, Acceptance Test.

Item #	Information Required	Narrative Answer
8.a	Testing Organization	Kathpal Technologies
8.b	Name of Test Team Chief	Paul Howard
8.c	Date that Year 2000 compliance testing was completed	11/2/99
8.d	How was Year 2000 compliance determined? (certified by vendor, contractor, or in-house developer; tested in-house; inspected but not tested; etc.)	An IV & V contractor tested the application on the operational system.

		Yes	No
8.e	Are the test data sets available for regression testing on the next version release for questions F.2, 3, 4, 5, 6, 7d, and 7e?	x	
8.f	Are the detailed test results and reports available for review and audit for questions F.2, 3, 4, 5, 6, 7d, and 7e?	x	
8.g	Do you follow a defined process for tracking the status of all Year 2000 problems reported, changes made, testing, compliance, and return to production?	x	

COTS/GOTS UNITS

F.9 Optional: Provide the Following Information Regarding COTS/GOTS Units.

Item #	Information Required	Yes	No	N/A
9.a	Does the system use COTS/GOTS application packages and/or infrastructure components?	x		
9.b	If yes, have those items been verified to be Year 2000 compliant?	x		

Item #	Information Required	Narrative Answer
9.c	How was Year 2000 compliance determined? (Certified by vendor, developer, or independent contractor; tested in-house or by independent contractor; etc.)	Tested by independent contractor.

CERTIFICATION LEVELS

F.10 Certification Levels are Defined Below. Yes, Verified and N/A are considered Positive Responses. No is considered a Negative Response.

Level	Rationale
0	System, network, or database retired or replaced
1	Independent testing and/or observed testing completed with either: - All questions have positive responses except possibly 7b or - All questions have positive responses except possibly 7a
2	Independent audit of system and existing testing completed with either: - All questions have positive responses except possibly 7b or - All questions have positive responses except possibly 7a
3	Self-certification CAUTION: Self-certification assumes a higher risk level of potential failures
3a	Self-certification with full use of 4 digit century date fields - All questions have positive responses except possibly 7b
3b	Self-certification indicates risk due to use of 2 digit century fields - All questions have positive responses except possibly 7a
3c	Self-certification indicates risk due to ambiguous usage of dates - Question 5-a,b,c or d have negative responses.
3d	Self-certification indicates potential problems (System needs additional work before Year 2000 processing can be assured with any level of reliability) - Question 2-a,b,c or d have negative responses, or - Question 3-a,b,c,d,e,f,g,h,i or j have negative responses, or - Question 4-a,b,c or d have negative responses, or - Question 5-a,b,c or d have negative responses, or - Question 6-a or b have negative responses, or - Question 9-b has a negative response.
4	Not certified or not certified yet.

F.11 YEAR 2000 STATUS FOR THIS SYSTEM, NETWORK, OR DATABASE.

LEVEL OF CERTIFICATION FOR THIS SYSTEM: (*Circle only one*)
0 (1) 2 3a 3b 3c 3d 4

I certify that the information provided above is true and correct to the best of my knowledge and belief:

ADDITIONAL COMMENTS

System Manager/System Owner — Date 11/30/1999

I certify that the information provided above is true and correct to the best of my knowledge and belief:

ADDITIONAL COMMENTS
This program fails on the Unix date of January 19, 2038. It is recommended that no action be taken at this time to correct the problem. This program will not exist in its present format in 39 years.

RECOMMENDATION:
Recommend Level 1 as the Certification Level for this system.

Independent Year 2000 Validation Authority — Date November 22, 1999