CMU Kennedy

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Date: February 17, 1999

Florida Public Service Commission
Capital Circle Office Center
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

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Florida Public Service Commission
Division of Water and Wastewater

Re: Year 2000 Compliance

Dear Sir or Madam:

We have received your request seeking certification that our company is aware of the Year 2000 (Y2K) issue, and that our internal systems are capable of handling dates beyond December 31, 1999. This letter explains our efforts to achieve Year 2000 compliance.

We advise you that **Teltrust, Inc.** has had an active Year 2000 committee in place since August of 1997. The committee has been actively auditing all of the company's computer hardware and software (including our telecommunications equipment), all of the building facilities and all of our major vendors to assess Year 2000 compliance. The auditing and assessment phase is expected to be complete by the end of the 1st Qtr of 1999.

The committee's current plan allows for replacement of any non-compliant systems and testing of all systems well in advance of the millennium. **Teltrust's** Year 2000 committee reports regularly to our COO, who is aware of the issues and potential problems associated with the Year 2000.

Additionally, we have been actively soliciting compliance statements from major vendors and suppliers of service to ensure that these vendors will be able to provide those products or services without interruption. **Teltrust's** Year 2000 committee has also begun preparing contingency plans, which will be implemented, if required, to minimize any potential problems that might occur.

For obvious reasons, the ultimate success of our Year 2000 efforts cannot presently be determined. Nonetheless, we can advise you that **Teltrust** is committed to having all of its major systems Year 2000 compliant in sufficient time to meet the challenges of the new century. We are confident that **Teltrust** is well-prepared for the date change, and that the Year 2000 problem will not affect our ability to provide our contractual services to your company well into the next century.

Please be advised that the information contained herein shall be considered a Year 2000 Readiness Disclosure Act (Public Law 105-217). This letter is solely for your information and assistance in connection with your Year 2000 compliance efforts and is not to be quoted or otherwise provided to any party without the prior written consent of this company.

Please let us know if you require any further information with regard to this issue. We will be pleased to accommodate you in whatever way we can.

Very truly yours,

David Curtis
IS Production Mgr.

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Y2K COMPLIANCE PLAN

INTRODUCTION

This documentation will serve as explanation and brief outline for all Year 2000 compliance efforts within **Teltrust, Inc.** in order to ensure that all systems are Y2K compliant. This document will also serve as a preface to the Project Plan.

As a preface to the Project plan, this documentation will provide descriptions and explanations of the work to be done. This work includes inventorying, modifying, testing, and certifying that all computerized functions will continue to process date related functions past the millenium.

Furthermore, any system using a date function is suspect. This includes embedded systems such as, HVAC, security systems, elevator controls and other electronic components.

PROJECT OBJECTIVES

This Y2K compliance plan contains all activities pursuant to Teltrust's due diligence and good faith efforts to ensure that all computer systems are Y2K compliant in- that they properly process dates greater than or equal to the year 2000.

This Y2K project is broken up into five phases as listed below:

- Awareness
- Inventory/ Risk Assessment
- Renovation & Conversion/Testing/Validation
- Implementation /Certification
- Maintenance

Each of these phases contains specific goals and objectives. As each phase is documented, the documentation is archived in the Project Office by the Project Manager. The Project Office is comprised of various team members, representing each department within Teltrust, including but not limited to:

- Corporate
- Legal
- Human Resources
- IS
- Marketing
- Accounting/Finance
- Network Operations
- Technical Operations
- Network Technologies

Team members are responsible for inventorying, assessing, modifying, testing, and certifying their departments or given assignment as Y2K compliant. The Project Office will supply the necessary forms and compliance standards for certification.

AWARENESS PHASE

By now everyone has heard of the Y2K problem. The Awareness Phase, from Teltrust's perspective is to be sure that Management understands and embraces the need to become Y2K compliant. Management also understands that funding the costs for compliancy is paramount to the continued growth and success of Teltrust.

Management understands the consequences of procrastination from a profitability and legal aspect. Therefore, the goals and objectives of the Awareness Phase are to:

- Ensure all levels of management and employees understand the Y2K problem, generally and how it may impact their departments
- Define the Project Office and its purpose
- Develop communications plan
- Develop project logo and mission statement
- Provide framework for each department to understand the issues and the information needed to solve those issues
- Establish vehicle for dissemination of project progress (i.e. intranet, newsletter, e-mail, etc.)
- Cooperate with Legal, Regulatory, and Audit to analyze warranties, contracts, and outside communications

INVENTORY PHASE/RISK ASSESSMENT

This is a critical aspect of the overall project. Inventorying systems is done regardless of whether the systems need repair. In this phase, information about the location, type, status of the software and/or hardware is documented.

Once each department completes their inventory, each component or system listed must be assessed for risk. The determining factor of the risk assessment is the criticality of the component or system, to the continued operation of services provided by Teltrust.

Depending upon the critical nature, a priority must be assigned to each component or system in the Risk Assessment portion of this phase. The following considerations must be made in respect to the inventoried components or systems:

- Fix/Update
- Replace
- Renovate
- Retire

Following is a table of items and systems to be inventoried and a risk assessment conducted on. For each of the items in the table, the Project Office possesses the appropriate forms.

Mainframe Systems	Teltrust does not own or operate mainframe systems
Client Server Hardware	Teltrust owns and operates Client Server Systems and runs its mission critical applications and processes on them. Client Server hardware can present unique challenges because a complete system usually contains several vendor's hardware and software. Teltrust Information Services has the necessary information pertaining to the inventory and testing of the system.
Software and Utilities	In client-server systems, refer to the explanations above. Other application software packages can be inventoried from the IS department, third party vendors, or department heads.
Custom Applications	All custom applications have been developed by or are currently being supported by the IS department. Source code is available for analysis by the IS programmers.
Inventory Third-Party Software	This is perhaps the most difficult aspect of inventorying activities, and yet it carries the least amount of risk. Most of the software in this category is PC based. Teltrust will seek certification of compliance for all third-party software.

PC Hardware Systems	Most 386/486 base machines are not Year 2000 compliant. Even those BIOS's that allow the use four digit dates will not function properly beyond the Year 2000. To address concerns about BIOS chipsets, Teltrust will use several utilities available to check the compliance of all machines. There are very few machines at Teltrust older than two years but the chipsets still need to be checked.
Relational Database Systems	Teltrust uses the Microsoft SQL Server for its RDBMS. It already supports a four-digit year.
Network Infrastructure	Teltrust's Network Administrator maintains the documentation, which includes a layout for the network structure. The data-networking group will identify all components such as routers, intelligent hubs/concentrators, and Firewall systems. These systems are normally Unix or proprietary based and will generate log files or reports that are date sensitive. Teltrust supports remote offices that communicate across private and public networks. Teltrust will consider the equipment at those sites as well as information crossing time zones and the international date line.
Telecommunications Infrastructure	The telecommunications infrastructure at Teltrust includes the nation-wide network of telephone switches and local PBXs that comprise voice/data telecommunications equipment. Technical Operations will need to identify PBX's, Integrated Voice Response Units, switches, Bridges, and Telephony systems.
External Organization	These include outside services, suppliers, vendors, distributors, and large customers. Teltrust will prepare documents for the external organizations to verify their y2k compliance.

Additionally, other facilities that will be inventoried and assessed (with the above mentioned considerations), are the following:

- Fire and Alarm Systems
- Security Systems
- Microprocessor-based air conditioning units
- Elevator Controls
- Generator Controls
- Programmable Thermostats
- Programmable Lighting Controls
- Digital Time Clocks
- FAX Machines

Teltrust will use the following table when evaluating a Risk Assessment for each component of the Y2K project.

Other Considerations	
No Change	Teltrust may after evaluating the alternatives, decide not to make any changes and live with the problem of the millennium. This might even be a good option for systems where the problems will only be an inconvenience during the transition. An example of this might be with personal computers that are likely to be replaced by the Year 2000 anyway.
Discontinue the System	There may be some systems that are not worth changing. If the cost to change those systems exceeds the benefits provided then they should be discontinued rather than changed. It might be more cost effective to invest in a new and more modern system.
Modify the system/application for compliance	In most cases the best solution will be to change the system/application to correctly handle the century dates.
Include Year 2000 changes to current development	Teltrust is currently developing or enhancing code, the Year 2000 changes and technical specifications are included as part of the project.

Use Year 2000 project to perform other changes at the same time	Since we are analyzing, modifying, and testing code already, we have the opportunity to perform other enhancements at the same time. This can be a way to gain a positive benefit from the Year 2000 project, since it is a cost-effective way to upgrade systems. However, we must be careful not to sacrifice the projects time line for things that would be "nice".
Scheduling	An aspect that needs to be addressed during the assessment phase is whether sufficient resources exist to complete the Year 2000 conversion. These resources include processing capability, disk space, operations support, and software tools to support logically separating the test environment for the duration of the testing phase.
Interfacing with other applications	We must coordinate modules or applications within the same system, between applications on the same platform, across platforms within our organization, and with external systems.
Availability of Hardware/Software testing environment	Testing will require sufficient processing resources and a Year 2000 compliant environment. Teltrust plans to implement a test environment. There are on current plans us use external testing services.

With the above considerations, the documented Goals and Objectives of this phase are:

- Complete an Inventory and Assessment form for each component or system
- Document an item's vulnerability
- Conduct Risk/Contingency Planning

RENOVATION & CONVERSION/TESTING/VALIDATION

The issue of date conversions actually comes to rest within this phase. It is decided in this phase whether to upgrade all date fields to reflect a four-digit year, or only those fields absolutely necessary. The selection of a specific century representation drives numerous requirements for events when converting. For example:

- Selecting a date expansion approach requires a physical migration of application data. This data migration requires the use of a bridging technique. (This bridging technique is a utility program that serves as data interface between two or more systems/programs. It interfaces one date format in one program to those with another date format in a different program)
- Coordinate and synchronize conversion efforts for the applications that share the data.

Once the renovation process is determined, actual conversion begins. This conversion is implemented on a priority basis. The IS department is heavily involved in this phase because of the coding changes required in custom programs and applications. In addition, IS will:

- Renovate the System code
- Command language (operating systems)
- Applications
- Interfaces
- Interpreters (where necessary)

Depending upon the Risk Assessment, the system or application will be evaluated for one of two conversions, either **FULL or MINIMAL. Teltrust will use a combination of both:**

- ***Full conversion***: requires date calculations to be fully expanded to four digit years. This also requires that data storage, file data, and database structures are fully expanded. Full conversions usually take more time to implement, but are more flexible and easier to update later.

- ***Minimal conversions***: converts only those date calculations that will definitely fail and cause the greatest impact to the business. This should only be used where time will not permit a full conversion or where the software is scheduled for replacement.

Date fields are typically used for other purposes. Therefore, each line of code must be carefully examined for flags. Additionally, several programs use the same procedure for environment settings. These settings typically turn off the century setting or "hardcode" the century to "19". Each of these conditions must be checked and followed through the entire data flow process.

Whether the process is manual or automated, it starts with identifying items such as those whose names contain *DATE, YEAR, YY, etc.* In addition to changing date fields or the program logic to support dates after 1999, many programmers have used date fields for purposes other than dates. As indicated in the preceding paragraph, many programs use the date field with the value "999999" to indicate the last record, or "000000" to indicate a null flag. A caveat to this issue would be having archive tapes expire on September 9, 1999 (9/9/99).

In the interest of time and expenditures, Teltrust has decided to implement two methods of conversion for date and time functions. The first is a ***Windowing Technique*** for date calculations in programs, where feasible. This falls under the category of Minimal Conversions, and is also referred to as a *Process Based Method.* Most database structures currently in use are storing the full date and time so the century will not pose a problem in those databases. However, when data is migrated, if it is not in the full century format it will have to be interpreted based on the windowing technique, which assumes any year between 0 and 59 is considered to be year 2000. Years 60 and greater are interpreted as 1900. This method is only a temporary fix, and coding will eventually have to be fixed to require the full century.

The second method is to actually change the program code and database structures where necessary, to make it require four digits for the date. This method is within the Full Conversion and is also referred to as *Data Based Method.* The data based method provides the best guarantee for century correctness, decreases the process logic time, and has highest data usage value.

Each application will be assessed based on its importance, which is documented on the Inventory Form. The Project Office will then determine which method should be used for converting the application to compliant standards.

As each application is converted, it will be tested on a separate system, isolated from the network and production machines. The testing will use sample files of real data and then validated with actual data (produced from the network system), for consistency and accuracy.

IMPLEMENTATION AND CERTIFICATION

When the testing phase is complete for each system and the testers have accepted the system with the changes, Teltrust will implement the new Y2K compliant system. The implementation of compliant systems will proceed according to the following primary functions:

- Communicate the state of the system to Project Office
- Coordinate the implementation with operations and production
- Notify effected parties of the impending system changes
- Notify all affected parties of the scheduled implementation process
- If possible, considering equipment costs, the new and old system should be run in parallel for one or two weeks as a safety precaution.

Implementation procedures will use the ***On-going Method*** to move new systems into production. This method is more feasible when the dates are changed using the Windowing Technique. Since only the programs change to use the Windowing Technique, it is feasible to put the programs into production a few at a time, without impacting other programs or systems.

Retrofitting changes are expected to be a time consuming process and will require some additional testing to ensure that retrofitted components work properly. Again, this will need to be determined by the Project Office.

As each new system is implemented and "minor bugs" are worked out, the system will be certified as Year 2000 compliant. Also, part of the certification process is to ensure that all documentation for the system being certified is complete and up to date. This documentation is part of the audit trail that will be maintained by the Project Manager for tracking and auditing.

The objectives and goals of this phase are to:

- Verify that each item has had Due Diligence applied
- The significance of the certification report is to suggest to some degree of certainty the system is compliant
- Create documentation to verify that all systems have been at least evaluated.

MAINTENANCE PHASE

As part of the new improved Quality Assurance program that is being planned for Teltrust I.S., the QA review process of all new programming will include year 2000 considerations. This is to make certain that non-compliant data or codes are not re-introduced into the system. Using the Windowing Technique will provide some insurance, but it does not provide a guarantee.

This appointment or assignment of a Quality Assurance person will be a continuing position while developing new applications, modifying existing applications, or acquiring third-party hardware and software. This person will need to devote the majority of his/her time, at least in the beginning to this maintenance process.

CONCLUSION

Teltrust is aware of the Year 2000 ramifications on its computer systems. This document has described the action plan that will be executed to insure that Teltrust or none of its clients suffer any adverse business issues when the year 2000 arrives. In addition to executing this plan, I.S. will be standing by to deal with any unanticipated problems as they happen. The accompanying Gantt chart shows the timeline for all activities related to this project. Teltrust is confident that all reasonable steps will be taken in time to prevent Y2K related problems.