



WHAT

is the problem? Most people have heard that a major computer problem is on the horizon for January 1, 2000. The issue is called Year 2000, Y2K, or the "Millennium Bug."

Many computerized functions require recognition of a specific year, day and time, but most computers and computerized equipment recognize only the last two digits of a year's date (i.e. 1998 is 98; 2000 is 00.)

Therefore, when the calendar changes to the year 2000, many computers and equipment with embedded computer chips will have difficulty interpreting the correct date; they may interpret the year to be 1900 or some other year.

A number of things are likely to happen: some computers and equipment will "crash"; others will operate erroneously; others may simply stop and need to be restarted; some may create data that looks correct but in reality contains errors; and some may continue to operate correctly.

WHY is the Environmental Protection Agency (EPA) concerned? EPA's mission includes helping to assure safe and clean water for all Americans. EPA does this by providing technical assistance as well as other kinds of help to drinking water and wastewater treatment plants, which are owned and operated by local government or private utility companies.

Many of these plants operate with some level of computerization. Thus, monitoring, operations and maintenance, communications, laboratory analysis and reporting are areas that should be assessed for potential Year 2000 computer-related problems. These types of problems could lead to permit violations.

EPA is helping local government and private utilities become aware of this potential problem. It is important that utilities have an opportunity to make changes or contingency plans that allow for "business as usual" on January 1, 2000 and that these utilities continue to protect public health and the environment.

WHEN is action needed? Time is running short. Action is required now.

If you are a drinking water or wastewater treatment plant owner or operator, you should be aggressively acting now to protect your system from computer caused failures on January 1, 2000.

HOW should a utility address this problem? EPA recommends a six step approach to help ensure normal operations on January 1, 2000.

AWARENESS -- As Soon As Possible

First, owners and operators of drinking water and wastewater treatment plants, and equipment manufacturers, communications and energy providers that support them need to be made aware that the problem is pending. EPA is working to distribute information through fact sheets, newsletters, conferences and other channels, and invites others to help. Owners and operators may wish to prepare for customer inquiries about the situation and what steps are being taken to ensure continued high quality drinking water and wastewater.

ASSESSMENT -- As Soon As Possible

Assessing the extent of the problem is the next step. Owners and operators should locate and list all computerized equipment and equipment with embedded computer chips in their systems and determine which are vulnerable. To begin assessments, they can refer to equipment owners manuals and equipment manufacturers, plus a general EPA checklist of potential trouble spots, available at www.epa.gov/year2000/ow.htm.

CORRECTION -- by 6/30/99

Once the problem areas have been identified, correction of the systems should occur. This can involve modification, repair or replacement of systems or components. There are diagnostic programs available as well as consulting firms and computer specialists that can assist in making the necessary corrections. Some of this information is also available on Year 2000 Websites.

CONTINGENCY PLANS -- Draft by 6/30/99; Final by 9/30/99

As a back up measure, all systems should have a contingency plan to deal with unforeseen problems and emergencies. Among other things, these plans should address how systems would be manually operated until the computerization problems are resolved. These plans should be developed simultaneously with the correction phase, and revised after the testing/validation phase.

TESTING/ VALIDATION -- by 7/31/99

Running tests on the system to make sure the corrections fixed the problem is the next step. These tests should be run as soon as possible after assessment and correction in case additional changes need to be made. Independent verification of the test may be appropriate in some cases.

IMPLEMENTATION -- by 9/30/99

Once the systems are readjusted to operate correctly, they should be retested and revalidated. Then they are ready for implementation.

WHERE is help available? For further information and help, visit the EPA Year 2000 web site at www.epa.gov/year2000/ow.htm. There you will find an EPA checklist that can serve as a starting place for checking basic systems. Manufacturers and industry experts can provide advice on specific systems. Other information is posted there too.