The XtremeEdit graphical editor is an advanced development environment for creation of dynamic displays. XtremeEdit is a modern, highly sophisticated tool for HMI development, which makes the task of creating, modifying and maintaining the user interface much easier than it has been in the past.

Any Windows computer tied to the plant computer network can act as a client and be used to develop and run dynamic displays (referred to as XtremeViews™). No special license is required for developing displays using XtremeEdit and it may be utilized as a stand-alone package. In addition to instructor station graphics, XtremeEdit can be utilized for creation of “soft” panels or other dynamic classroom training displays. This makes XtremeEdit an excellent tool for plant engineers and management.

XtremeEdit was designed as an intuitive and easy-to-use graphical editing tool with the added power of objects with dynamic attributes. With a built-in runtime environment, displays can be tested and debugged from within XtremeEdit. XtremeEdit also has the power of a Visual Basic scripting tool, which enables the developer to have control over virtually any aspect of the display.

Figure 1 shows the basic configuration and tools of the XtremeEdit graphical editor. On the top toolbar are icons for grouping, arranging, grid controls, fonts, colors, shadows, etc. On the left is the object properties sheet, which is used to assign the static and dynamic properties, program events in Visual Basic script, and modify ActiveX properties, if the selected object is an ActiveX component. There is also a toolbar of drawing tools positioned at the right side of the display. In this drawing the tank level indicator has been selected, and the indicator properties are being displayed in the properties box. At the lower left of the figure are object catalogues.

Objects, which can be components created by the user or commercially purchased ActiveX controls, are collected in the catalogues and may be “dragged-and-dropped” onto the page. All of the objects on the page were dragged into the drawing from a catalogue and connected with “smart” lines that attach to anchor snaps on the objects. The smart lines can automatically route around other objects.

GSE provides extensive libraries of hundreds of components and control room instruments typically found in power plants. Control panel instrument libraries are developed from actual digital photos of control panel instruments. The ability to utilize ActiveX components in XtremeEdit is a major feature. XtremeEdit is supplied with a large library of ActiveX components that can be used to create objects that would be commonly used on displays, such as meters, trends, switches, digital value displays, analogue value displays, dynamic plant components, and input boxes. Users may create additional ActiveX controls or purchase them commercially from a number of sources.
The user can create new component catalogues with objects that are built in XtremeEdit or purchased commercially. Figure 2 shows a user building a simple valve with the “Polyline” tool of XtremeEdit. A new catalogue is created and the valve is simply “dragged-and-dropped” into the catalogue. It can now be used repeatedly.

The GSE Xtreme™ model building tools are part of the XtremeEdit graphical environment. Each model building tool is documented in its own manual. As identified in the appendices, additional information is supplied in the XtremeEdit manual.

The XtremeEdit model builders consists of four tools - XtremeFlow™ for fluid flow and thermal hydraulic models, XtremeElectric™ for modeling of electrical networks, and XtremeControl™ and XtremeLogic™ for modeling of control and logic systems. Models built with these tools are in use at Waterford3, Prairie Island, Cooper, North Anna, Surry, Kewaunee, TMI, Clinton, Byron, Braidwood, LaSalle, Dresden, Quad Cities, Limerick, and Vogtle.

The Xtreme model builders are resident within the XtremeEdit graphical development environment. The model builders consist of catalogues of modeling objects and code generation tools. GSE created the Xtreme model builders to allow development of sophisticated simulation models, but without the labor-intensive effort required by earlier generations of complex modeling tools.

The Xtreme Tools develop models that consist of well structured, commented code that can be maintained utilizing standard, commercially available debugging tools and techniques. Earlier-generation tools produce code that can only be maintained within the model builder environment, tying the user to a vendor-proprietary tool for all future simulator maintenance. The Xtreme Tools are also the only model building tools specifically designed to allow new models to easily be integrated with existing simulator models.