



# Sandia National Labs Uses JWAVE™ to Help Determine Status of the Nuclear Weapons Stockpile

## JWAVE Case Study



- **Industry:** Government
- **Application:** Weapons Stockpile Management
- **Product:** JWAVE

Sandia National Laboratories, located in Albuquerque, NM, and Livermore, CA, are part of the U.S. Department of Energy (DOE) national laboratories. The lab located in Albuquerque employs approximately 6,200 workers and is responsible for a variety of missions, including nuclear weapons stockpile management. It is the job of these Sandia employees to make sure that the U.S. Government's nuclear weapons are safe, reliable and available.

*"We do trend analysis, linear and multiple regression curve fitting, X-Y basic scatter plots and bar charts using JWAVE, and have been very satisfied with JWAVE's performance. We have found the user interface to be very intuitive and easy to use, and we are able to integrate the graphical outputs into our common operating environment - Windows®. JWAVE also enables us to utilize Web-based technologies, which is important for the work that we do."*

Bill Swartz, Manager  
Information Technologies and  
Data Modeling  
Sandia National Laboratories

### Quick Facts:

Sandia National Laboratories (Sandia) chose Rogue Wave's JWAVE to accurately determine the reliability of their weapons by analyzing all the data associated with the stockpile surveillance program. JWAVE enabled Sandia to build a new, sophisticated and cost-effective web-based stockpile surveillance testing system that is easy to use.

### The Problem:

Bill Swartz, manager of information technologies and data modeling at Sandia National Laboratories (Sandia) in Albuquerque, is chartered with providing applications to Sandia's approximately 3,000 engineers to equip them to do their various jobs as effectively as possible. Swartz's group was responsible for developing a new application for the stockpile surveillance organization to enable safe, effective testing and thorough analysis of the weapons stockpile. Group members were using Web-based technology and needed an analysis package that would enable them to accurately determine the reliability of the weapons by analyzing all the data associated with the stockpile surveillance testing program.

The data analysis system in place at Sandia was inadequate and difficult to use. The user interface was cumbersome and the software itself was unable to handle all of the data analysis. Consequently, engineers were required to manually extract data and process it on their own PCs. This process was frustrating and very time-consuming. The team began a search for a more sophisticated analysis and visualization package that could be used in conjunction with the group's Intranet, Java™ Technology, and HTML.

### The Solution:

Sandia chose Rogue Wave's Java-based JWAVE software to solve its stockpile management problem. JWAVE is a member of Rogue Wave's PV-WAVE family of products. It works in conjunction with PV-WAVE to deliver developers with a powerful, web-enabled, all-in-one data analysis and visualization solution.

JWAVE is based on a multi-tiered architecture that enables you to easily create applications that embrace open standards and will grow as your organization grows. Whether developing applications using the Java programming language or HTML and Java Server Pages, JWAVE lets users perform numerical analysis and visual interpretation of large, complex data sets.

During a commercial product analysis, Sandia evaluated several software packages, and according to Swartz, "We determined that JWAVE was the most robust and cost-effective solution on the market."

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## JWAVE KEY BENEFITS

- Significant time savings
- Web-based technology for sharing and collaboration
- Easy-to-use user interface
- Automatic data extraction
- Cost-effective all-in-one solution
- Sophisticated and robust analysis and visualization capabilities

## Return on Investment:

“JWAVE has proven to be a very capable software package and has met all of our requirements,” comments Swartz. “One of the most important benefits we’ve derived from JWAVE is a huge time savings in performing data analysis. What used to take a week to accomplish now can be done in minutes using JWAVE. We look forward to using JWAVE in many future applications.”

## World Class Products, Services, and Support:

Rogue Wave Software, Inc. is the largest independent provider of cross-platform software development tools and embedded components products. Rogue Wave offers tools that reduce the complexity of prototyping, developing, debugging, and optimizing multi-processor and data-intensive applications. Rogue Wave customers are industry leaders in the Global 2000, ISVs, OEMs, government laboratories and research institutions that leverage computationally-complex and data-intensive applications to enable innovation and outperform competitors.

PV-WAVE is an array oriented fourth-generation programming language used by engineers, scientists, researchers, business analysts, and software developers to build and deploy Visual Data Analysis applications. These applications let users manipulate and visualize complex or extremely large technical datasets to detect and display patterns, trends, anomalies, and other vital information.

PV-WAVE Foundation allows users to obtain data from multiple sources and offers many options to visualize data. Also, PV-WAVE Advantage adds a sophisticated set of analysis routines based on the IMSL Libraries and provides more than four decades of confidence and reliability unmatched by other packages. Additional PV-WAVE Foundation features include image and signal processing, data import and export, 3-D surface, plot, histogram, contour, animation, color editor, and a database table display.

Rapid data analysis and visualization, combined with flexibility and power, make PV-WAVE the choice among experts. By increasing productivity, accelerating development, and illustrating key knowledge contained in big data, PV-WAVE gives organizations a competitive advantage.

JWAVE is included in the PV-WAVE Family for network-based visual data analysis applications. It provides quick access to and greater understanding of data from anywhere, at any time. The ability to uncover valuable insights about data makes analysis simple. With JWAVE’s multiple graphical and visualization techniques, users can quickly create 3-D surfaces, X-Y plots, polar plots, animations, contours, bar charts, histograms, and more. Developers can rapidly analyze, visualize, and share critical information immediately across the organization, regardless of the computer platform.



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