

# VE-PROMS

## The Nuclear Industry Standard For Procedure Maintenance Systems

**VE-PROMS** (Volian Enterprises **PRO**cedure **MA**intenance **S**ystem) is an advanced document management system originally designed for the unique maintenance requirements of nuclear utility plant procedures. It goes far beyond the capabilities provided by conventional word processors, producing high quality and consistent procedures. It is backed by many years of experience in procedure development and software design, and a commitment to cost-effective, no-nonsense software applications.

A significant amount of effort is being expended by the nuclear industry to upgrade and improve plant procedures. The electric utilities that are responsible for these upgrade efforts are constantly striving to improve both the quality of the procedures themselves and the efficiency of the procedure maintenance process. The incentive for achieving these objectives is to ensure safe and reliable operation of the plant with attention towards eliminating unnecessary or excessive cost associated with procedure maintenance. Several factors such as increased regulatory attention, more sophisticated procedure formats and structure, and enhanced technical content and basis, contribute to the difficulty of accomplishing this task. Word processing systems can no longer handle the complex process of procedure maintenance efficiently.

VE-PROMS includes full-featured word processing, database, and desktop publishing functions. VE-PROMS also has many unique features which substantially increase the efficiency and effectiveness of the procedure maintenance process.



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THE GLOBAL NUCLEAR INDUSTRY IS IN NEED OF A  
QUALITY PROCEDURE MAINTENANCE SYSTEM

**VE-PROMS** can help you ensure format consistency, adherence to your writer's guide, setpoint usage consistency, and adherence to other administrative objectives. Every part of your procedure maintenance effort benefits from VE-PROMS.

- **Procedure writing** expertise serves its intended role: to analyze and verify the technical content of the procedures. The procedure writer can follow up on specific technical issues without concern for adherence to structure and format rules. Automated features also expedite analysis of the procedures from a human factors standpoint. All changes to the document are automatically saved and tracked by the software.
- **Clerical** support becomes more efficient from using the intelligent word processor provided in VE-PROMS. All editing and printing is controlled by the software, which automatically uses the structure and format rules provided by the writer's guide. No special procedure format knowledge is required because the plant writer's guide is embedded in the software.
- **Administrative** tasks are automatically maintained by the software. VE-PROMS maintains a record of all changes made to a procedure set. Changes are identified on the screen via highlighting and on the printed procedures via change bars. Reports summarizing all changes are available. These reports are useful to the procedure writer for keeping track of changes and meeting record management requirements.

## Why VE-PROMS?

The inherent features of VE-PROMS that contribute to its overwhelming success in the procedure maintenance software market are summarized as follows:

- **Adaptable** for use in a Windows application environment
- **Full-featured** word processor
- **Consistent** procedure structure and terminology via software format manipulation
- **Vigilant** tracking of procedure modifications
- **Automated** procedure approval system
- **Continuous** data integrity checking
- **Security-oriented** password protection system
- **Supportive** of single, dual and triple column procedure step formats
- **Generalized** search capability
- **Maintenance** of Multiple similar procedures using one Master.
- **Multiple formats** within a single document
- **On-line**, context-sensitive help
- **Integrated Graphics**, including scanned images, CAD drawings or sketches
- **Hyperlink capability** for transitions between procedure steps, or procedures
- **Referenced Objects**, providing linkages to multiple, user-defined databases
- **Expanded options**
  - Multi-user Network functionality
  - Hyperlink-Enhanced Background Documents
  - Hyperlink-Enhanced Deviation Documents
- **Export** capability to an RTF or pdf file format
- **Real Customer Service** by people knowledgeable on VE-PROMS and procedure maintenance.



VOLIAN IS ALSO A RECOGNIZED LEADER  
IN PROVIDING QUALITY ENGINEERING SERVICES  
TO THE NUCLEAR INDUSTRY

## A State-of-the-Art Procedure Maintenance System

The features that have established VE-PROMS as the nuclear industry standard for procedure maintenance systems reflect the expertise in software development and nuclear engineering that Volian has maintained since its formation in 1984. Volian is a recognized leader in providing the nuclear industry with quality engineering services. Volian's Engineering and Software Departments work closely together to enhance the functionality of VE-PROMS, as evidenced by the following features:

### Text Format Based on Position in Document

During the edit process, text is not just randomly entered. The creation process is structured to include the ability to generate procedure steps, cautions, notes, equipment lists, explicit AND substeps, etc. VE-PROMS automatically places these text elements in the correct position within the procedure step hierarchy, formats it to the correct width on the screen, and places it into the correct column position.

### Sequential Step Element Numbering

Where applicable, step element numbering in the document is automatically generated as the procedure text is entered. These numbers are also automatically resequenced as procedure steps are created or deleted.

### System Logging of Changes

The software automatically tracks the change based on the user name, and the date and time of the change. This information is retrievable through the generation of a report via the VE-PROMS print function.

### A hyperlink System

A transition is a dynamic reference to another place within a procedure, or to another procedure. For example, the text "go to step 3.1.2," may be replaced by a transition identifier that refers to that step. This live-link is automatically maintained as procedure steps are added or removed.

### Comments Attached to Steps

VE-PROMS provides the capability for the procedure writer to attach editorial comments or reminders to procedure steps. Comments are only seen when editing the procedure text element to which the comment is linked. Comments are not included on the document hardcopy. VE-PROMS provides the capability to search for comments and print a search summary of comments.

## Standard Steps

This function of VE-PROMS can provide assistance in maintaining consistency among procedures by identifying and grouping similar steps, cautions, and notes.

## Security System

A user name/password are assigned to each writer utilizing the system. All changes are automatically tracked by user name. The security system also allows the VE-PROMS Administrator to assign different levels of document access on a user-by-user basis. This feature provides the ability to permit plant personnel, other than the procedure writers, to view, search and print procedures while not having the necessary access to edit them.

## Global Search Facility

This function provides the ability to search for common words/phrases and Referenced Objects across entire procedure set(s) with a direct link to the Editing module. The search results can be viewed on the screen or printed.

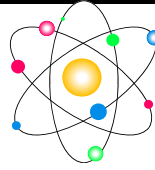
## Archival System

VE-PROMS provides direct access to software used to create and update procedure archives, and to save/restore them. The software uses compression techniques to minimize disk storage.

## Referenced Object Databases

The VE-PROMS Referenced Objects Module enables the procedure writer to create multiple databases containing various plant data (Setpoints, Valves, etc.) which are linked to the procedure text, with their position automatically tracked by VE-PROMS. Therefore, a single data modification can automatically be reflected throughout the procedure set.

A prime example of the benefit realized through the use of Referenced Objects is the ability for a multiple unit plant to possess a database housing unit specific information, such as equipment identification nomenclature, etc. This feature enables the plant procedure writers to maintain a master procedure set (EOPs, AOPs, etc.) for the entire site, while having the ability to access the necessary information to generate unit specific procedures for implementation into the applicable Control Room. This, and the many other applications of Referenced Objects generate unlimited possibilities for improving the manipulation of pertinent plant data utilized in nuclear plant procedures.



## Nuclear Industry Utilization

The first installation of VE-PROMS was at the Indian Point Unit 2 Nuclear Power Plant in 1986. The experience that has been gained since this installation has served to improve the functionality of the system. Twenty-three utilities are currently using VE-PROMS to maintain their procedures. Many have reported a 50% decrease in their procedure maintenance time while improving the overall quality of the procedures. While the primary use of VE-PROMS has historically been the maintenance of Emergency Operating Procedures, VE-PROMS is now used to maintain a vast variety of additional procedure sets and documents including the following:

- Abnormal Operating Procedures
- Administrative Procedures
- Alarm Response Procedures
- Annunciator Procedures
- Background Documents
- Dedicated Shutdown Procedures
- Deviation Documents
- Emergency Plan Implementation Procedures
- Fire Contingency Procedures
- Instrument Failure Guides
- Maintenance Procedures
- Normal Operating Procedures
- Surveillance Procedures



## Quality Assurance

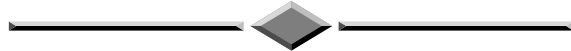
Volian Enterprises is staffed by highly qualified, highly motivated employees who take a personal interest in the customer's needs. This dedication and pride in their work ensures our customers of high quality engineering and computer services and products. The Volian Enterprises Quality Assurance Program is an integral part of our business, which reflects our commitment to providing quality products and services.



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## Advanced Procedure Editing

The VE-PROMS editor provides all of the standard document editing features of a full-featured word processor. However, unlike conventional word processors, the formats and document structures prescribed by the plant's writer's guide are embedded in the plant-specific VE-PROMS format, and are reflected in both the editing and output generation functions. Therefore, the problems and limitations of attempting to define a standard format in a conventional word processor are eliminated. This is especially beneficial in a multi-writer environment. All document changes automatically conform to the prescribed format, therefore, data entry is faster and easier. Renumbering of procedure steps and references to steps is performed automatically by the VE-PROMS editor.



## Structured Printing

VE-PROMS is designed to generate final copy procedures, thus eliminating the need for pre-printed forms. The plant specific writer's guide requirements, especially page layout, are embedded in the VE-PROMS format. The document text print options available in VE-PROMS include the flexibility to a) print an entire procedure; b) print an individual procedure section or page; and c) print preview a procedure.

In addition to generating procedure hardcopy, VE-PROMS provides the functionality to generate logs which summarize procedure modifications. The ability to summarize the integration of plant data from supporting databases, along with identifying procedural interactions via transition links is also supported by the VE-PROMS print function.

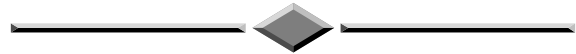
Pagination of a procedure is an ongoing and serious problem for the procedure writer using traditional word processing systems. As procedure steps are added, deleted, or modified, the pagination of a document may change. Most plant Writer's Guides dictate that cautions and notes associated with a step must immediately precede a step and be located on the same page. Often this leads to a manual proofreading exercise where invariably some of the cautions and notes would be located on the bottom of the preceding page and, therefore, be misplaced. VE-PROMS automatically repaginates a procedure and always locates the cautions and notes on the same page as the step.



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In those situations where a step is only a few lines too long for a page, it is normal practice to adjust the line spacing commands to fit the entire step wording on the page. VE-PROMS automatically performs this task.

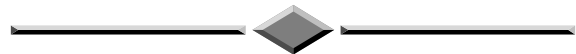
If a step must be printed on multiple pages, many writer's guides require a message such as "THIS STEP CONTINUED ON NEXT PAGE" to be placed on the bottom of the page. On the next page a message would notify the procedure user that the step was continued from the previous page. VE-PROMS automatically determines the proper locations for the page break and prints the appropriate message. These pagination functions are all accomplished without embedding text or printer commands in the procedure document data.



## Procedure Change Control

The process of procedure maintenance dictates that changes are made continuously. The identification and traceability of changes to the procedure are a necessary function for the procedure writer to perform. This task is often so difficult and time consuming to accomplish manually, that it is sometimes completely neglected or only partially implemented.

VE-PROMS addresses this issue by automatically highlighting all changes on the display screen. Also, at the procedure writer's option, change bars will be placed adjacent to changes on the printed procedure. The change bar function is useful in reducing review time during the procedure verification and approval processes. In addition, VE-PROMS can print complete reports of all changes made to a procedure with the date of the change, who made the change, the "old" text before the change, and the "new" text after the change. These reports also note changes to Referenced Objects links and transitions. Therefore, VE-PROMS automatically performs the change control function, which removes the burden of this task from the procedure writer.



## Procedure Implementation

The procedure group must maintain at least two copies of each procedure set. One set is the "approved" version, which is the currently used version (i.e. the set of procedures in the control room). The second set, referred to as the "working draft", is the set of procedures currently under modification. This set replaces the approved set once review and signoff are completed. An APPROVAL feature is provided to process procedure changes into a new revision of a single procedure or the entire procedure set.

Another useful feature within VE-PROMS permits the procedure writer to perform an approval on a single procedure basis. This feature automatically checks for interdependencies or transitions between the procedure to be approved and other procedures within the set. For example, modification to a procedure setpoint value in conjunction with the addition of a procedure step. It is often difficult for the procedure writer verify if the procedure setpoint is in other procedures, or if an addition of a step has changed a transition reference from another procedure. Unless this verification is accurately performed, these changes may introduce the potential for the propagation of error throughout the procedure set. VE-PROMS performs this check automatically, thus eliminating the potential for technical inconsistencies between procedure entries.

VE-PROMS determines if the chosen procedure affects other procedures within the set in terms of containing modifications to Referenced Objects, transitions, and/or library documents. Any affected procedures will be identified, and the reason (modified Referenced Object return value, etc.) will be indicated. The user will then be able to approve all of the affected procedures or generate a printed summary of the interdependencies. If no other procedures are found to be affected, the user is assured that the chosen procedure can be approved without impact on other procedures. The two-phased approach employed by VE-PROMS (procedure interdependency review and the actual procedure approval) is useful for improving the Q/A process for procedure implementation.

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## Master/Slave Procedure Maintenance

VE-PROMS permits the user to maintain similar procedures using a single Master procedure. Only the "master" procedure is edited, and the changes get filtered down to the "slave" procedures, which can be printed and approved for use at the plant. Maintenance and test procedures often are very similar for similar pieces of equipment. For example, a single "Master" procedure can be written to address the calibration test procedures for an SG level channel. "Slave" procedures for each SG channel can be generated from this one "Master" procedure. This helps ensure consistency between procedures while minimizing the maintenance effort.

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## Data Integrity Checking and File Repair

The procedure data is stored within databases on either a network server or individual workstation. Since computer files can get corrupted by a multitude of reasons (such as a server crash while a database file is opened), VE-PROMS continuously monitors the integrity of the files while VE-PROMS is in use. If a problem is found, software written for VE-PROMS, will attempt to repair the problem.

Most data corruption problems can be fixed with this automated program.

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## RTF Export

This RTF export option adapts VE-PROMS output to a Rich Text Format (RTF) which can universally be used by many word processors and viewers. Also with the appropriate windows print drivers from Adobe, VE-PROMS output can be converted to a .pdf file. The feature could be useful for sending the procedures to the document control department.

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## Expanded Options

The following VE-PROMS expanded options increase the effectiveness of the software to support the procedure development process; create an efficient procedure maintenance environment; and ensure consistency throughout the plant procedure network:

### Network Capabilities.

The standard version of VE-PROMS is inherently designed to execute from a network. Data can reside on a local or plant-wide network where it can be accessed by multiple users to support a large procedure development effort. The Network Option automates the following administrative functions associated with a network-oriented environment:

- **Multi-User edit...**More than one writer can modify procedures within a set. As the common files are changed, they are temporarily locked to other users, thus ensuring traceable procedure modifications.
- **User Environment...**Each user has their own set of environmental files, including search result files, temporary files, etc. To the user it will appear that he/she is independently using the data.
- **Data Integrity...**Control access to data files is automatic, assuring the integrity of plant data. If more than one user attempts to edit the same procedure, the system will place all but the first into a view-only mode.

### Hyperlink-Enhanced Background Documents

This option eliminates the redundant work currently necessary when a change is made to a procedure step. The Background Document is automatically linked to a procedure step and immediately updated when a change is made. Additionally, the Enhanced Backgrounds are maintained within VE-PROMS, utilizing all features of the software.

### Hyperlink-Enhanced Deviation Documents

This option applies mainly to Emergency Operating Procedures, or other procedure types derived from generic

guidelines. Changes to procedure steps are automatically linked in a Deviation Document and reflected immediately. This option supports both the short and long industry standard formats.

## Software Installation & Customer Support

A plant specific VE-PROMS installation may include the loading of the customer's procedures and setpoint data into the VE-PROMS system by Volian. The customer's Writer's Guide is used to create a VE-PROMS document format. A Referenced Objects database would be created to house the setpoint data. As the procedures are installed, they are reviewed against the other procedures in terms of format and structure. Inconsistencies are identified to the customer so that they can decide on an appropriate action. After the procedures are bulk-loaded, verification of the procedure text can be optionally performed. Based on the verification results, differences are identified and reviewed with the customer. Many times these differences involve inconsistencies between the original procedures and the writer's guide. This requires changes to either the writer's guide, the procedures, or both. The customer determines the most appropriate actions to resolve these differences.

Volian is committed to providing quality products and customer support as evidenced by the following:

- Volian provides a variety of training services on the effective use of VE-PROMS at various levels including:
  - Basic Usage
  - Advanced Usage
  - Administrator
- Under the Volian Enterprises warranty and extended maintenance policy, enhancements to the product and personalized customer support are continually provided. Assistance is only a phone call away.



BASIC USAGE TRAINING  
IS TYPICALLY PROVIDED AS PART  
OF A VE-PROMS INSTALLATION

## Hardware & System Requirements

VE-PROMS runs on conventional IBM-compatible personal computers. The minimum hardware requirements to utilize VE-PROMS in the most effective manner are as follows:

- Pentium III 400 or faster
- 256 MB of RAM
- We recommend HP LaserJet III Series or greater. Most printers that have Windows print drivers are acceptable.
- MS-Windows 2000 (or higher)
- 75 Megabyte available on the hard disk to support the VE-PROMS software. The amount of data will naturally dictate the space required.

Volian recommends an additional minimum of a 20 Megabytes of hard drive space to support a single working draft and approved copy of procedures.

### For Additional Information:

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