

# Buy PHA Software with Confidence

By

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## I. Introduction

Imagine you are the head of your process group for risk assessment and have decided that you and your team need to purchase software to perform a number of PHA's. In order to carry out this task you must sell the idea to 'the powers that be' and that will not be easy! Your mission is to gather fire power to show the bosses that this investment will inevitably save the company a great deal of time, money, and heartache. Performing PHA's is expensive and if you can reduce the overall cost by 10 or 20%, good software can pay for itself in a matter of a few days! Your search must be systematic and informative, while your purchase must be proven and affordable. To begin, you must know your company's specific needs, what elements are essential in PHA software, and most importantly what questions to ask the vendor.

It is no secret that performing manual PHA studies can be very time consuming and tedious. With the advent of Windows®, however, there are now unique opportunities to use powerful interfaces that can improve efficiency and communications, reduce the information gap, surpass the previous quality of the documentation and provide many new options.

Computerization offers three major benefits:

- *Consistency of analysis*
- *Access to stored data and information*
- *Documentation of results to create accurate and representative records*

Software greatly improves productivity and efficiency by sharpening the focus of its users, thereby saving time and improving integrity. All this can lead to significant cost reductions. The efficiency of computerization, though, is a function of the operating system. Different operating systems are unlikely to provide similar results since, at the time of their inception, different markets and requirements have been addressed.

The following is a "*Purchaser's Checklist*" along with three popular myths about PHA software. We hope this will help you and your company search for user friendly PHA software.

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## II. Systems Check

### *What operating system should my PHA software use?*

**ADVICE:** Find out what operating system your company currently uses and verify that your PHA software is compatible with it. An example would be the Windows® (Windows 3.1®, Windows For Workgroups®, Windows 95®, Windows NT®) operating system. This system is perhaps the most common operating system and offers a wide range of excellent features.

### *Does my company operate on a Local Area Network (LAN)?*

**ADVICE:** If your company works on a system where the people in your office log into the same network, your PHA software should be able to operate on a network system as well. In this case you probably would have to purchase a "site license" from the vendor. The cost of this will be higher since the number of possible users increases considerably.

### *Is the PHA software compatible with management systems that can assist with the execution of recommendations from PHA studies?*

**ADVICE:** Every company executes recommendations differently but most use spreadsheets (such as Excel, Lotus® 1-2-3 etc.). Make sure you can transfer recommendations for future data manipulation.

### *What programming language was used to write the software?*

Never buy software at face value. It may look good on the surface, but how was it written? Software written in more powerful code, such as C++, reduces the time of execution of commands and can offer greater program flexibility.

### *How much space should the software take up?*

Powerful programs do not have to take up vast amounts of space to be effective. An efficiently written program may take up 10% of the space of another, -yet still have many more features and run much faster. Don't be deceived by the size of the program - determine what it can do and how long it takes to do it! It is advisable to find a program that is written in such a way that it takes up a relatively small amount of space so that the software will perform effectively on laptops/notebooks, which tend to be less powerful than most desktop computers.

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### III. Technical Support

*What technical support service does my vendor offer?*

**ADVICE:** Buying PHA software should be like a good marriage - dedicated and long term. It is not unreasonable to pay a yearly support fee for technical support after a 90 day period of owning the software. Make sure that you are supplied with comprehensive manuals, that help files are included and you can get on - line support. Another issue to consider is the availability of telephone technical support. Take a chance before you purchase your software and call the technical support line of the vendor and test the speed, attitude and general helpfulness provided.

*How often does the company update its software?*

This is crucial. Software (and hardware!) is much like our University textbooks - once published they are probably somewhat out of date. If your prospective vendor publishes software only every 5 years, you must think carefully about purchasing from them. Software **MUST** be updated on a regular basis. Your company must be kept technologically advanced, to be viable with the competition. Also find out if the upgraded software remains compatible with previously created files.

*Can the vendor provide support at your company's different sites?*

**ADVICE:** If your organization is international you should make sure that the vendor is able to support all pertinent locations . On-site training and risk support services should also be affordable and available. The last thing your company needs is long distance technical support phone calls from Australia to the American software head office. The time difference, as well as the cost, can result in additional headaches!

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### IV. Licensing

*Does the vendor offer multiple licensing options?*

**ADVICE:** In general you should have the choice of a single, LAN, or corporate licenses (plus academic, where relevant). The prices should range depending on the number of users your company requires. Obviously, if you bought a corporate license the unit cost of the software will be greatly reduced.

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## V. Flexibility

*What Process Hazards Analysis methodologies does my company wish to use, and will the PHA software support them?*

**ADVICE:** HAZOP(Guide Word and Knowledge Based approach), What If/Checklist, Preliminary Hazards Analysis, Failure Modes Effects Analysis, are all acceptable PHA methodologies. Your software should be flexible enough to cover the techniques your company needs to comply with the OSHA 1910.119(or other) regulations. HAZOP is perhaps the most popular PHA methodology. With Guide Word HAZOP, make sure the software can perform cause-by-cause hazard evaluation.

*Is the PHA software compatible with other relevant software on my operating system?*

**ADVICE:** If you are on the Windows® operating system, for example, will your PHA software work with spreadsheets like Excel® or Lotus® 1-2-3, or word processors like Microsoft Word® or WordPerfect®? There are great benefits to having this compatibility since it allows you to create and store much additional information either before, during or after PHA sessions. Also, exporting to your corporate database structure should be an option. This will be helpful in tracking all of the recommendations.

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## VI. Features

*Does the software I want to buy have features that make my company's PHA studies more efficient?*

**ADVICE:** All PHA software can only produce as good a result as you input ("garbage in, garbage out!"). Software can really only act as a tool to assist engineers in their work. These tools must have features that make execution and documentation of the PHA more efficient and thus more cost effective.

*What are some key features that will speed up our PHA's?*

**ADVICE:** Power features make a great deal of difference. Being able to input data without having to make too many keystrokes or mouse clicks will make your sessions flow smoothly and quickly. Make sure you can easily:

- Enter data and edit input
- Recall and copy previously entered data
- Access pre-established libraries of information (and those you have created)
- Update recorded data
- Export/import information to/from software

- Save and back-up entered data
- Choose different printing options - one format rarely suits everyone!
- Record/manage/track recommendations and resolutions

***What documentation features should I look for?***

**ADVICE:** It is frustrating to conduct a meaningful PHA session only to find that the documentation fails to provide adequate records. Are you able to record the sessions fully? Can you print a separate list of recommendations according to different priorities? Other features that are important include: session attendance records, key words used in the study, P&ID or drawing reports...etc.

***What screen formats should I expect?***

**ADVICE:** Manual based methodologies for performing PHA's have been based upon the aspect ratio of the university blackboard, i.e., much greater width than height. Horizontal scrolling computer monitors, being less elongated, leave the user partly blind, as the full width is never available to the viewer. The vertical format allows the PHA team to view a larger set of data and reduces information overload. Scrolling is a negative feature, especially when using display devices for team interaction. The vertical organization of data eliminates scrolling, making the vertical format ideal for group environments using LCD projection systems or large monitors. Additionally, although the vertical format is used to input the data, the horizontal format is better for generating reports that can be easily read.

***Does the software have customizable options?***

**ADVICE:** Customizable options, such as a Naming Convention option permits the user to alter the names of the key items such as Nodes, Deviations, Causes, Consequences, Safeguards, etc. A program can thus adopt a chameleon-type characteristic; it is able to adapt to many other applications beyond the standard PHA techniques. Such an option permits the user to create and/or customize their own safety review technique(s). Multiple alternative methods for entering data that might include: keyboard combinations, mouse, use of tool bar and pull-down/pop-up menus. These can allow for shortcuts and individual preferences, which may also change.

***How does the software deal with Filing & Data Storage?***

**ADVICE:** Data integrity is paramount since lost files means lost results which represents wasted human resources. If sufficient material were to be lost, it might not be possible to repeat the PHA process in its entirety. Make sure you can save files on an **automatic back-up system** so that the data loss potential is minimized. Additionally, being able to set the automatic backup timing sequence is a very valuable feature. The loss of data from a study will not only make you unpopular, but also could cost your company a considerable amount of money.

***What Risk Matrix does my company use, and does the software I want to purchase support it?***

**ADVICE:** Since risk is defined as the consequence of an incident times the frequency, this evaluation provides some measure of the risk involved. Computerization is well suited to using risk matrices. The software should support a range of alternatives as well as enabling you to "build -your-own" risk matrix and assign values as well as set these new risk matrices as a default will save you considerable time.

***Does the PHA software have Knowledge Based Libraries available? Can you create your own?***

**ADVICE:** Well made PHA software employs Knowledge Based Libraries that contain large amounts of data. Such libraries, held in special modules within the body of the program, supply information on node types, recommended deviations, and their respective causes and safeguards (controls). Both predefined and user constructed libraries are desirable. Such memory aids can greatly assist in preventing important topics from being overlooked. For less experienced teams, the Knowledge Based Libraries provide a learning exercise. Since your plant may have very specific needs, you should be able to create and store your own libraries for future use. Also, the use of temporary library features, e.g. 'clipbooks', can be very useful. Remember that a Knowledge Based Library will also, like a brain, grow and retain all previously inputted data.

***What else should I consider?***

**ADVICE:** None of us is perfect, we need both quick fixes and time saving features. Look for features such as duplication, insertion, search and replace, merging, moving, auto-renumbering, deletion and so forth. If the user is not familiar with a PHA methodology (e.g. HAZOP), on-line tutorials can be helpful. In the USA, PHA methodologies (such as HAZOP) are insufficient to cover all the demands of PHA according to OSHA 1910.119 legislation. Does the software provide assistance, such as additional 'checklists' in remediating this situation?

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## **VII. The Myths**

***The following are three popular (although undesirable!) myths about PHA software:***

**MYTH #1:** There is a myth that the most inexpensive PHA software will give you an adequate return. However, as all PHA software is not created equal, this is a complete fallacy. As the cost of PHA software is **minuscule** compared to the cost of performing the PHA's, you get the best financial return by using the *best* product on the market, not the cheapest!

**MYTH #2:** There is a myth that one piece of PHA software isn't very different to another. Let us suppose you have two or three PHA software products written for Windows®. Does this mean that one is as good as the other? Not in the least! In fact, a poorly written Windows® product might be infinitely worse than a similar product

written in DOS! Some software is less versatile than others and may be less user friendly. Overall, avoid purchasing software you cannot use!

**MYTH #3:** There is a myth that an organization who performs good PHA's must also produce good software. However creation of good PHA software requires a combination of good programming skills and a good working knowledge of PHA methodologies. There are great benefits to purchasing software from a company that focuses on software design. Remember you are purchasing a technical tool and it is of the utmost importance that it was written in a professional and expert manner.

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## VIII. Final Advice to the end user about to purchase PHA software

**Compare, Compare, Compare!** Be a conscious consumer. Find out which product is best for your company. Use the checklist provided above to compare the different products, together with any other features you consider critical. Ascribe numerical values to the points and award each software package your most objective evaluations, summing up the totals and comparing. Have a number of your process engineers and scribes test the products out. You should purchase the most user friendly and well written product.

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## IX. Summary

It is hard to believe that there are still people conducting PHA's using manual methods who don't appreciate the benefits of using PHA software. The benefits to using PHA software only exist if the software meets your needs and provides more efficient preparation, execution and recording of your PHA sessions. To do this needs some questioning and some research; not blind acceptance. As with anything else, "try before you buy" and *caveat emptor* (buyer beware!) are good advice. Obtain a working demo and test it out. If you have problems, phone the vendor. The vendor may also offer training and assistance in performing PHA's - yet other factors to evaluate before you purchase.

Computerized software tools have assumed major significance for the execution of PHA's. They can offer better on-line presentations and performance to the user, as well as providing better documentation and downstream tracking. The chances something is "missed" are greatly reduced. PHA sessions are often arduous and painstaking. We need all the help that computer software can provide!

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## References/Further Reading

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## The Authors

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