EMS SOFTWARE COMPARISON

As part of the U.S. Environmental Protection Agency (U.S. EPA) and American Association of Port Authorities (AAPA) supported Ports Environmental Management System (EMS) Assistance Project, GETF conducted a neutral analysis of “off the shelf” software products specifically designed to support an organization's development, implementation, and subsequent management of its EMS. The assessment focused primarily on managing environmental issues; however, the analysis also considered the software’s capability for integrating quality, environment, security, and safety and health into a single management system approach. An integrated management system approach may be very well suited to the complex, overlapping issues and pressures faced by Ports. While the assessment was conducted specifically with Ports in mind, the assessment may be useful to other public sector businesses and organizations considering the use of software to support their EMS. GETF was specifically selected to conduct this software assessment due to its unique synergy of in-house skills and expertise in both EMS development and technical assistance, and its knowledge of leading information technology applications.

EMS implementers are seeking tools that allow them to efficiently manage EMS implementation and maintenance tasks, such as project scheduling and management, training and training records, documentation management, and internal auditing and corrective/preventative actions. EMS software packages can offer the following key implementation management and EMS maintenance tools:

- Better communication between environmental and project staff at multiple installations
- Easy access to routine environmental and EMS documents and records
- Access to regulations and other requirements; enhanced management of permits, reporting, and compliance
- Database query, reporting, and updating
- Document repositories
- Enhanced project management
- E-mail based notification systems with escalation functions
- Calendar and EMS milestone and progress functions
- EMS report generation tools
- Information access security controls

Assessment Approach
The software assessment entailed collecting factual information via interviews, product demos, message exchanges, and web research on sixteen EMS-focused software products currently available. The products were identified through working knowledge and past experience, colleague referrals, and general research. Each of the identified products were assessed against specific criteria (see evaluation criteria descriptions below) as deemed critical to implementing a viable computer-based management system. Example criteria included: ISO compliance, platform dependencies/adaptability, email notification capability, template provision, licensing requirements, access controls/security features, training, product support, and price. The products were also assessed for manageability of fundamental EMS elements, including: document control features, procedure writing, sample documentation database, environmental aspect and
risk assessment, tracking regulatory compliance, record management, corrective and preventative action, and auditing. Potential users should subsequently ensure a selected product is compatible with the organization’s existing IT infrastructure prior to purchasing an EMS software system.

GETF utilized every effort to maintain a neutral disposition and to provide factual information as gathered through product marketing materials, product vendor interviews, and web-based demos. GETF did not have the ability, due to time and logistics, to demo each individual product. Based upon the information collected, GETF subjectively divided the software products into two tiers based on capabilities and specific relevance to the Port EMS Assistance Project. The following is a breakdown of the software products by tier (products are listed alphabetically):

**Tier 1**
- Amadeus Environment Expert eQRP
- Entropy International Envoy
- Enviance
- GreenWare ISO 14000 Implementation Software
- GreenWare ISO 14000 Software Suite
- IBS America QSI System for Environmental Management
- Integrum ISOft 14000
- Intelex ISOsoft 14001
- Prism Equation
- ZMH² EMS-EZ (Graduate research project, included due to potential leveragability)

**Tier 2**
- Dakota Auditor EMS
- EMAServer Module ISO 14001 WES
- Gage EMSTutor - ISO 14001 Expert System
- IsoTop GP ISO 14001 TimeSaver Software
- ISYS International ISO 14001 Expert-Ease
- Oxegen - Oxegen EMS
- Solution Foundry EMSolution Web

**Evaluation Criteria Descriptions**

**Software Functionality**

**Documentation Templates:** Software includes sample document templates (i.e., procedures, policies, manual, etc.) that can be used in the development of an organization’s relevant EMS-related documents and/or easily customized to fit the needs of an organization.

**Document Creation/Integration:** The degree of product flexibility for creating and/or integrating relevant EMS documents into the management system varies greatly. This element is commonly a “sticking point” with products being too prescriptive with regards to document format. Some products are based upon readymade documents/procedures that drive the overall system allowing minimal flexibility on the part of the user, whereby
other products allow a high degree of flexibility with the user able to choose between provided templates, creating documents from scratch, and/or incorporating existing external documents from varying application programs (e.g., Microsoft Word, PDF, etc...).

**Document Control/Review Functions:** Software includes a document management function, with the ability to track controlled documents, provide a review process, and archive documents. Documents are linked in some format to other relevant components of the EMS (i.e. activities, tasks, responsibilities, training, etc…).

**Document Archive/Library:** EMS documentation is maintained to accommodate adequate record control and all records and documents are indexed and easily locatable. Many providers offer a library type structure, similar to Microsoft Windows Explorer, with documents linked to relevant activities within the EMS.

**Data Compilation and Report Preparation:** Software has tools to provide environmental analysis in summaries and graphical reports to determine trends, etc…

**Calendar Management:** Software has a viewable calendar function to track upcoming EMS implementation and management tasks and deliverables. Products also may have the capability to integrate email notifications/reminders.

**Milestone/Task Management and Tracking:** Software includes a management tool that produces automatic reminders/notifications to individuals and/or groups, such as reminders of projects, tasks, and permit requirements. This function may be linked to calendar management tools.

**Regulatory Compliance Management:** Compliance management tools to assist with the tracking and compliance of legal and other requirements, including permit deadline reminders, regulatory updates, roles and responsibilities, etc…

**Gap Analysis Tool:** Software includes a tool that allows an organization to assess their EMS against the ISO 14001 requirements either at the beginning of EMS implementation activities and/or at a specific time of their choosing (e.g., prior to an audit).

**Aspect/Impact Analysis Tools:** Software has an environmental aspect analysis tool to identify, rank, and prioritize a user organization’s most significant environmental impacts.

**Audit Component/Tools:** Software includes information relative to audit requirements and procedures enabling internal and/or external auditors to verify and document whether the organization’s EMS is in conformance with the audit criteria set out in ISO 14010 and 14011. This component may include a comprehensive set of audit procedures, tests, checklists and sample questions, as well as requisite audit documentation and reporting abilities.
**Training Management:** Software has tools to manage training requirements and training records relevant to environmental management.

**Context-specific ISO 14001 Text:** Includes ISO 14001 Standard language and direct references to the relevant elements.

**Public Entity Clients**

**Public Entity Clients:** Software caters to public entities specifically or as a significant portion of their client base. Public entities have been identified that utilize the software.

**Integrated System Capability**

**Integrated System Capability:** Software is designed for integration with other systems, such as quality management, safety and health, etc…

**System Architecture**

**Client Server Solution / Stand-alone PC Version:** Software is installed directly on the user’s hard-drive and/or hosted internally and purchased through individual licenses.

**Web-enabled/Hosted by Provider (ASP):** Software can be accessed via web browser, hosted by the software vendor, and does not require software to be installed on individual user’s desktops. In addition, web-enabled software is Internet and Intranet capable and platform independent. Software can be linked to other applications and websites to provide up-to-date information.

**Database:** The software’s back-end database and query platform (e.g., Microsoft SQL, Oracle, etc…).

**Client Operating System:** The different operating systems the software supports (e.g., Windows 98/ME/XP, MS Office, Internet Explorer 5.0 or higher, etc…).

**Security Features/Multi-level Access:** The software allows for multiple levels of user access, limited by defined roles and responsibilities. The access is determined by an individual user’s log-in information. This feature serves two purposes: 1) provides security through limiting access to important information and documents; and 2) simplifies the system by only providing access to information and features (i.e., clears the clutter) necessary to the individual/group user.

**Product Cost**

**Single Desktop License:** The software’s available cost and options on licensing of their product.
Training: Software includes access to training, either included within the software package or available through a classroom structure. Additional costs are denoted.

Product Support: Technical assistance/product support offered by the software provider as part of the purchase price. Additional costs (i.e., annual support fees) and description denoted. Often this aspect is negotiated and customized at the time of purchase.

Unique Software Needs and Characteristics of Public Sectors
Historically, EMS software tools have targeted private sector organizations and corporations; however, several providers have recently focused significant attention on the growing pool of public entity EMS implementers. Due to the initial focus of product development on the private sector, many of the existing products do not meet public sector-specific needs and organizational characteristics (i.e., technological capabilities, scalability to small organizations, operational sectors such as wastewater, etc...). Although an organization’s approach to EMS implementation may be similar (i.e., plan-do-check-act, 17 elements of the ISO 14001 Standard, etc...), there are fundamental, organizational differences between public and private sector entities. EMS implementation experience has revealed that the needs, level of requisite support, and capabilities of private versus public sector EMS implementers can vary considerably.

Research and feedback has shown that many existing products, originally created for use in the private sector, are too prescriptive in regards to the structure and implementation of an EMS for use by many public entities. Many of these products are driven by the immediate goal of “achieving ISO certification” as quickly as possible, not a goal necessarily held by public entities. Therefore, many products offer a “cookie-cutter” type approach that strives for turn-key implementation of an EMS. In addition, for an EMS to be successful in driving effective environmental management for public organizations, documents, procedures, policies, and the like must be adaptable to different educational levels and technical capabilities and specific for the site and operational sector (e.g., fleet maintenance) in question. While initially the prescriptive nature of some software is comforting and supportive, overcoming inflexibility in later stages of EMS development and implementation is often extremely time consuming, labor intensive, and counter-productive.

It should also be noted that many public entities implementing EMSs have found that a lot of EMS software packages include many more functions and capabilities than are actually utilized or necessary in practice. The needs of a particular organization can differ widely depending upon organizational size, internal capabilities and resources, and approach to EMS. The central component of a software tool for EMS implementation and maintenance is its ability to control and manage documentation and records. For many organizations this is the sole driver for purchasing an EMS software product, resulting in the organization only utilizing a portion of the software’s overall capabilities. In fact, some organizations have realized that all they need is a tool to help manage the documentation and have either developed this in house or hired an external consultant to do so. Therefore, one alternative to consider, dependent upon an organization’s specific needs, is to develop or purchase an EMS document management tool.

To our knowledge, the commercial market for such focused products is currently limited with most developed for internal purposes only. GETF was able to demo one such product during this
research, which was produced by the University of Massachusetts – Lowell, a participant in the U.S. EPA-supported 2nd EMS Initiative for Public Entities program. This product is currently being fine-tuned for marketability, but incorporates a very user-friendly interface and capabilities. Additional information on this product can be found at www.uml.edu/epaems.

**Public-sector Focused Software**
Currently, two EMS software providers have focused significant amounts of time and effort in customizing their products to fit the unique needs of public sector clients, having distinguished themselves, at least for the present time, from other competitors: Greenware (www.greenware.com) and Intelex (www.intelex.com). Both of these products have been procured and utilized by participants in the EMS Initiatives for Public Entities pilot projects and have secured contracts with a larger and more diverse range of public entities than similar competitors. As part of this software comparison effort, GETF participated in software demos and conducted interviews with selected users to assess the components and practical application of both software products.

Overall, both products were of similar quality and scope. Participants in the EMS Initiatives, as well as other relevant GETF clients that have utilized each of these products, have been generally satisfied that the products greatly enhance their ability to implement and manage their respective EMSs. However, a common thread throughout the user feedback has been that the Greenware product does not offer the degree of flexibility with regards to document creation and integration and significant aspect prioritization that was originally desired. Most organizations have learned to accommodate this limitation with resulting success. During the product demo, Greenware representatives expressed that their company is working diligently to increase the flexibility of their product.

Although GETF strived to maintain a neutral assessment of the available EMS software products, it was clear from research and demonstration that Intelex stands out when assessing software effectiveness strictly for public entity EMS use. Other vendors within the Tier 1 listing also offer outstanding management products; however, several expand beyond the scope of EMS, most notably the Amadeus Environment Expert eQRP product. GETF’s experience and research clearly identified Intelex as a more user-friendly EMS-specific software package with a simple, straightforward user interface and direct applicability to public entity characteristics and requirements. The Manager’s Dashboard, a unique feature to Intelex, was a great overall project management tool and offered a tremendous sense of comfort and control in managing the day-to-day activities of an EMS, a product capability especially valuable to public entity Environmental Management Representatives, as often they are expected to be the lone EMS expert within an organization providing leadership for implementation. In addition, the software maintains format consistency throughout every component, is exceptionally well linked throughout the management system, and offers tremendous, personalized product support. One weakness that was identified in the comparison to other products was that Intelex was among the highest in product cost.

**Conclusion**
It has become increasingly evident that more and more public entities are interested in software products to better manage their environmental impacts, especially with the implementation and
maintenance of EMSs. This follows a similar trend to that which occurred within the private sector over the last decade. GETF has witnessed this transition firsthand through the current EMS Initiative for Public Entities project in which over half of the participants have purchased or are considering the purchase of EMS-focused software. The Ports, due to the relative complexity of operations and issues as compared to the various public entity sectors, can significantly benefit and essentially implement and maintain more robust EMSs with the assistance of software products.
Yes, documents can be easily created from scratch, linked to templates, or linked to existing documents (i.e., Word, PDF, etc.). Yes, documents can be easily created from scratch, linked to templates, or linked to existing documents (i.e., Word, PDF, etc.). Documents can be easily created from scratch, linked to templates, or linked to existing documents (i.e., Word, PDF, etc.). Documents can be easily created from scratch, linked to templates, or linked to existing documents (i.e., Word, PDF, etc.). Documents can be easily created from scratch, linked to templates, or linked to existing documents (i.e., Word, PDF, etc.). Documents can be easily created from scratch, linked to templates, or linked to existing documents (i.e., Word, PDF, etc.).

### d. Document Archive
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- Yes, documents are maintained and archived in a central document library. Yes, the Document Manager function is maintained for audits. Yes, the Document Manager function is maintained for audits. Yes, the Document Manager function is maintained for audits. Yes, the Document Manager function is maintained for audits. Yes, the Document Manager function is maintained for audits.
- Yes, the System includes a Document Manager function controls and archives previous versions. Documents are associated with the various components of the EMS and controlled through specific security settings. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits.
- Documents are accessible through a set of folders with an unlimited number of subfolders allowed, with access controlled through security settings. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits. Yes, there is a record register containing proper maintenance for audits.

### e. Documentation Templates
- Yes, the product includes a variety of ISO 14001 templates (procedures, policies, checklists, etc.). Yes, the product includes a variety of ISO 14001 templates (procedures, policies, checklists, etc.). Yes, the product includes a variety of ISO 14001 templates (procedures, policies, checklists, etc.). Yes, the product includes a variety of ISO 14001 templates (procedures, policies, checklists, etc.). Yes, the product includes a variety of ISO 14001 templates (procedures, policies, checklists, etc.).
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### f. Document Library (Linked)
- All documents are organized in one-place through a Windows Explorer type structure and can be accessed easily and quickly. Documents are linked to keywords, references to other documents and physical locations. All documents are organized in one-place through a Windows Explorer type structure and can be accessed easily and quickly. Documents are linked to keywords, references to other documents and physical locations. All documents are organized in one-place through a Windows Explorer type structure and can be accessed easily and quickly. Documents are linked to keywords, references to other documents and physical locations. All documents are organized in one-place through a Windows Explorer type structure and can be accessed easily and quickly. Documents are linked to keywords, references to other documents and physical locations. All documents are organized in one-place through a Windows Explorer type structure and can be accessed easily and quickly. Documents are linked to keywords, references to other documents and physical locations.
- Yes, the system includes document templates that facilitate preparation of and revisions to required documents. Yes, the system includes document templates that facilitate preparation of and revisions to required documents. Yes, the system includes document templates that facilitate preparation of and revisions to required documents. Yes, the system includes document templates that facilitate preparation of and revisions to required documents. Yes, the system includes document templates that facilitate preparation of and revisions to required documents.
- Documents can be linked to various components through a central library. Documents are linked to various components through a central library. Documents are linked to various components through a central library. Documents are linked to various components through a central library. Documents are linked to various components through a central library.

### ISO 14001 Software Comparison Matrix - Tier 1 Products

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<tr>
<th>Evaluation Criteria</th>
<th>Entropy International Envoy</th>
<th>GreenWare ISO 14001 Implementation Software</th>
<th>GreenWare ISO 14001 Software Suite</th>
<th>IBS America OSI System for Environmental Management</th>
<th>Integrum ISO 14000</th>
<th>Intelex I(SO)soft 14001</th>
<th>Prism Equation</th>
<th>ZM® EMS-EZ</th>
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<tbody>
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<td>b. Document Creation/Integration</td>
<td>Yes. The System supports an unlimited number of documents in the Document Manager. These documents may be automatically created through the Template described above. All documents (like any type) can be associated with specific components of the user's model.</td>
<td>Yes, the module includes all of the templates and examples needed to create procedures, work instructions, etc. However, these components are based upon ISO 9000.</td>
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<td>c. Document Review Process</td>
<td>Automatically identifies author, creation date, issue, version number, revision date, and approver. Controlled through use of access and privileges tools.</td>
<td>Yes, customizable views for draft, final, etc. Diagnostic features that automatically evaluate completion and status, including a digital signature function and sign-off checkbox.</td>
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<td>d. Document Archive</td>
<td>Yes, utilizes a data warehouse structure ensuring that records are easily accessible.</td>
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<td>e. Document Library (Linked)</td>
<td>All documents are organized in one-place through a Windows Explorer type structure and can be accessed easily and quickly. Documents are linked to keywords, references to other documents and physical locations.</td>
<td>Yes, the system includes document templates that facilitate preparation of and revisions to required documents.</td>
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<tr>
<td>2. Data Collection and Report Preparation</td>
<td>Yes, a report generator for extraction, manipulation, and presentation of information related to the EMS. Graphics and statistical tool included.</td>
<td>Yes, users can instantly generate simple, multiple, or all reports.</td>
<td>The System includes an audit checklist, in addition to data collection and analysis.</td>
<td>The product has many reporting/data compilation options, including time/date (by individual), status, training, corrective action, etc. Exportable to Microsoft Word or HTML.</td>
<td>Yes, the product has many reporting/data compilation options, including time/date (by individual), status, training, corrective action, etc. Exportable to Microsoft Word or HTML.</td>
<td>Yes, All Rec. Reporting tool to create reports from data contained within In integrum and other data sources.</td>
<td>No, not a specific tool, but a spreadsheet tool.</td>
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<td>No, not a specific tool, but a spreadsheet tool.</td>
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<td>3. Calendar Management</td>
<td>Yes, implementation schedule with calendar dates for activities, tasks, and relevant documents.</td>
<td>Yes, creates a calendar-based reporting and task management schedule, with reminders and task completion date reminders.</td>
<td>The System includes a calendar organized by user and by EMS component at Email reminders of scheduled actions or reminders include a direct link to the task completion page.</td>
<td>The EMS Calendar contains a summary of all document due dates, tasks and actions, including key monitoring and document review dates. Automatic email reminders.</td>
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<td>4. Miscellaneous/Task Management and Tracking</td>
<td>Yes, tasks can be assigned to employees via an EMS tree structure, allowing you to see at a glance what stage each EMS is at along with requiring a specific set of objectives, targets, and tasks. Each employee accesses only the information relevant to his/her responsibilities.</td>
<td>Yes, individual tasks can be managed with unique users, system access, and responsibilities defined. Roles and responsibilities management is includes individual, team, and site task lists. Reminders and escalation information for completion dates and reviews, including a task function.</td>
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<td>5. Regulatory Compliance Management</td>
<td>Yes, management tools for gap analyses and/or internal audits.</td>
<td>Yes, the System includes a predefined report of gaps in the EMS.</td>
<td>Yes, the product has many reporting/data compilation options, including time/date (by individual), status, training, corrective action, etc. Exportable to Microsoft Word or HTML.</td>
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<td>6. Gap Analysis tool</td>
<td>No, a specific tool not included.</td>
<td>Yes, the System includes a predefined report of gaps in the EMS.</td>
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<td>7. Aspect/Impact Analysis Tools</td>
<td>Yes, software follows the format of aspect identification via activities, CVT's, and establishment of EMP's. Performance follow-ups and establishment of monitoring and measurement activities. Each aspect connected directly with relevant legal and other requirements, objectives, training, etc.</td>
<td>Yes, the System includes a means to identify, rank, prioritize and re-evaluate environmental impacts. Reporting allows Yes, each identified aspect is manually linked (via checklist function) to applicable ISO requirements, documents, reference links, and activities.</td>
<td>Yes, each identified aspect is manually linked (via checklist function) to applicable ISO requirements, documents, reference links, and activities.</td>
<td>Yes, each identified aspect is manually linked (via checklist function) to applicable ISO requirements, documents, reference links, and activities.</td>
<td>Yes, an EMS-Aspect Register.</td>
<td>Yes, via NOR &amp; CIPAR forms and management tools linked with a complete Audit module.</td>
<td>equationASP includes guidance, explanation, tools, and worksheets for identifying, recording, evaluating, and scoring aspects and impacts up front and for the long term.</td>
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<td>8. Audit Tools</td>
<td>Yes, Audit Module organizes an audit schedule enabling the assignment of appropriate resources. Integrates with a CAR Module and an Action Module, which is connected directly to the personal responsible.</td>
<td>Yes, including audit checklists</td>
<td>Yes, the System includes predefined questions that guide an audit. This pertains to both the development of the EMS and regulatory compliance audits. Audit findings are tracked to closure through automatically created and assigned tasks. Continuous improvement can be evaluated through summary reports.</td>
<td>No</td>
<td>Yes, ISO 14000 Audit Software for internal and external auditors and ISO 14000 Audit Pro, which includes a set of fully customizable audit protocols, controls and tests, and linked audit report function. Includes graphical representation and percentage of conformance.</td>
<td>Yes, including an archived Audit Trail.</td>
<td>equationASP includes an Internal Audit system to schedule all EMS audits, assign them to auditors, plan and prepare standard and customized checklists, enter audit reports, and generate corrective actions related to the audits.</td>
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<td>9. Training Management</td>
<td>Yes, ability to identify training needs and management training activities for personnel with environmentally-sensitive tasks.</td>
<td>Yes, training needs analysis and management. The System supports all activities in the process of implementing and maintaining a management system certified to ISO 14001.</td>
<td>Yes, EMS components include ISO specific text.</td>
<td>Yes, interactive worksheets address each individual element of the ISO 14001 standard.</td>
<td>Yes, interactive worksheets address each individual element of the ISO 14001 standard.</td>
<td>Yes, a training database linked to training needs.</td>
<td>equationASP includes web-based training courses that teach users about the EMS in introductory and intermediate levels of detail. The system automatically records those who have taken and completed the courses.</td>
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<td>10. Context-specific ISO Text</td>
<td>Not specifically based upon ISO 14001. Includes all the elements, but no reference to the standard.</td>
<td>The product supports all activities in the process of implementing and maintaining a management system certified to ISO 14001.</td>
<td>Yes, EMS components include ISO specific text.</td>
<td>Yes, interactive worksheets address each individual element of the ISO 14001 standard.</td>
<td>Yes, interactive worksheets address each individual element of the ISO 14001 standard.</td>
<td>Yes, each step of the implementation project plan is linked to the ISO's reference library and includes in-depth descriptions of the ISO 14001 requirements. Summarizes conformance to all requirements through a real-time, graphical &quot;Dashboard&quot;. Terms can be modified to fit the organization.</td>
<td>equationASP breaks the ISO standard into manageable chunks of information and provides easy to read and understand explanation of the requirements. The ISO standard is linked to the topics that need to be addressed throughout the EMS.</td>
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<td>11. Multi-lingual</td>
<td>Yes, each user can work in his/her own language</td>
<td>System does not currently include languages other than English. Envision has provided estimates to clients for inclusion of multiple languages in the software package.</td>
<td>Training and implementation services offered in English, Spanish, and French</td>
<td>Yes, ISO 9000-focused product includes a comprehensive audit and corrective action module, but it is unclear whether a similar structure currently exists for the ISO 14000 product.</td>
<td>Training and implementation services offered in English, Spanish, and French.</td>
<td>Yes, ISO 14000 Audit Software for internal and external auditors and ISO 14000 Audit Pro, which includes a set of fully customizable audit protocols, controls and tests, and linked audit report function. Includes graphical representation and percentage of conformance.</td>
<td>equationASP includes guidance, explanation, tools, and worksheets for identifying, recording, evaluating, and scoring aspects and impacts up front and for the long term.</td>
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*ZMH* EMS-EZ
### ISO 14001 Software Comparison Matrix - Tier 1 Products

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<tr>
<td><strong>Applicability</strong></td>
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<tr>
<td>1. Ports</td>
<td>Port of Houston Authority</td>
<td>Yes</td>
<td>The System addresses EMS, compliance management, including documents, corrective actions, audits, and training needs of ports.</td>
<td>Yes</td>
<td>Non-US. No public entity clients currently. Provided live demos to US Army and PA DOT which were well-received, but still under evaluation.</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>2. Public Entities (general)</td>
<td>Universities, large government offices, railway system, and District Council</td>
<td>Yes</td>
<td>The System addresses EMS, compliance management, including documents, corrective actions, audits, and training needs of various public entities. Current is the System is used by Universities, Federal DCE research labs, The National Institutes of Health, United States Coast Guard, United States Navy, the National Institute of Standards and Technology, and a county sanitation district.</td>
<td>Yes</td>
<td>No public entity clients currently. Provided live demos to US Army and PA DOT which were well-received, but still under evaluation.</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>3. Environment</td>
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<td>4. System Architecture</td>
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<td>5. Quality Control</td>
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<td>6. Security Features/Multi-level Access/Authority</td>
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### ISO 14001 Software Comparison Matrix - Tier 1 Products

- **Integrated System**
  - **Health and Safety**: Yes, as an integratable module
  - **Quality Control**: Yes, as an integratable module

### System Architecture

- **Client Server Solution/Stand-alone PC**: Available Option; additional client server requirements
- **Web-enabled/Hosted by Provider (ASP)**: Web-enabled, implementable in multiple sites
- **Database**: Microsoft SQL Server 7, 2000, or Oracle 9i
- **Client Operating System**: Microsoft Office
- **Security**: Yes
- **Security Features/Multi-level Access/Authority**: Yes, the Document Management module grants access only to the information necessary for an individual employee or defined group.

### Evaluation Criteria

- **Applicability**
- **Quality Control**: Yes, as an integratable module
- **System Architecture**: Available Option; additional client server requirements
- **Security**: Yes
- **Security Features/Multi-level Access/Authority**: Yes, the Document Management module grants access only to the information necessary for an individual employee or defined group.

### Key Points

- **System Integration**: The system is developed and hosted by IBS America, Inc. and can be installed behind the customer's firewall and hosted internally.
- **Security Features**: Includes multi-level encrypted code security, log-in name/password, entitlement encryption, user name/password.
- **Database**: Microsoft SQL Server 7, 2000, or Oracle 9i
- **Client Operating System**: Microsoft Office
- **Security**: Yes
- **Security Features/Multi-level Access/Authority**: Yes, the Document Management module grants access only to the information necessary for an individual employee or defined group.
<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Amadeus Environment Expert</th>
<th>Enviance</th>
<th>GreenWare ISO 14000 Implementation</th>
<th>GreenWare ISO 14001 Software Suite</th>
<th>IBS America QG System for Environmental Management</th>
<th>Integrum ISO 14000</th>
<th>Intelex ISOsoft 14001</th>
<th>Prism Equation</th>
<th>ZMI® EMS-EZ</th>
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<tr>
<td>Cost</td>
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<td>Note: Costs are dependent upon the specific needs of individual clients, as the majority of products are scalable in several variables. This assessment has attempted to provide a &quot;ballpark&quot; comparison.</td>
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<tr>
<td>1. Single Desktop License</td>
<td>Client may select requisite modules and pay only for them.</td>
<td>Pricing available upon request by calling 1-888-$572-290 (license 2.5-3.5) ($350/user 10+)</td>
<td>$2.479 ($3.299/user 2-10) ($619/user 10+)</td>
<td>Contact was unable to provide cost information, since their systems are customized to fit the needs of individual clients.</td>
<td>B2B</td>
<td>Price varies from approx. $2,000 up. Product is purchased by individual module with the full package (quality, safety/health, etc.) approximately $8,000. Product is customized to fit the needs of individual organization structure.</td>
<td>B2B</td>
<td>Price varies from approx. $2,000 up. Product is purchased by individual module with the full package (quality, safety/health, etc.) approximately $8,000. Product is customized for client organization structure.</td>
<td>B2B</td>
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<tr>
<td>2. Training</td>
<td>Customized training solutions delivered via the Internet</td>
<td>First day included in license. Additional days at $1,200/day for up to 10 participants. 1-day $250 (participant); 2-day $325 (participant); 3-day $390 (participant)</td>
<td>Includes a $500 Advisor module that offers guidance for development, implementation, and checking of the EMS. Various training options available.</td>
<td>On-line training database available 24 hours/day at $245/user.</td>
<td>On-line training database available 24 hours/day at $245/user.</td>
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<td>On-line training database available 24 hours/day at $245/user.</td>
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<tr>
<td>3. Location of Headquarters</td>
<td>Europe and Canada</td>
<td>UK</td>
<td>Berkeley, CA and Toronto, Ontario</td>
<td>Berkeley, CA and Toronto, Ontario</td>
<td>Lexington, MA</td>
<td>Australian product, Trinity Consultants is a North American (Dallas, TX) reseller</td>
<td>Toronto, Ontario</td>
<td>King of Prussia, PA 19395-2330</td>
<td>BB-</td>
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<tr>
<td>Special Notes</td>
<td>Based upon Pam-Den Check-Audit model with a very similar breakdown of activities as GETP’s model.</td>
<td>Cost includes product upgrades which are delivered seamlessly with no actions required by customer. Enviance is used by numerous public entities and industrial customers. Annual user conference is held.</td>
<td>Utilized by Muni II (Tri-Met) participant (Tri-Met) and recently purchased by Muni III participants (Kent County and Metro Waste)</td>
<td>Utilized by Muni II (Tri-Met) participant (Tri-Met) and recently purchased by Muni II participants (Kent County and Metro Waste)</td>
<td>The product has been used by single site operations to large corporations; however, a desktop product called ISOmate is also available with essentially the same functionality.</td>
<td>Utilized by Muni II Participant (Scottsdale), very good/responsive product support. Easy to navigate, Manager’s Dashboard very useful for ERM.</td>
<td>Call Mike Reeve at 603-763-4791 or email at <a href="mailto:mreeve@prismesolutions.com">mreeve@prismesolutions.com</a></td>
<td>Created through the University of South Carolina Columbia Technology Incubator (USCTI) business incubator program.</td>
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