



## **SAFETY & HEALTH INFORMATION SYSTEM (PEST MANAGEMENT) National Institutes of Health (NIH)**

Period of Performance: **March 2000 – present**      Place of Performance: **Bethesda, MD**

### **Requirement / Problem**

The Community Health Branch (CHB), of the Department of Health and Safety (DOSH), Office of Research Safety (ORS) is responsible for providing Integrated Pest Management (IPM) services and consultation to the NIH research and support services community. The NIH system that 270net created automates the data collection, analysis, and reporting requirements of the NIH IPM Program. 270net's solution supports over 100 different facilities on the NIH Campus.

In the past, the Pest Management Technicians serviced the facilities on a weekly basis and completed a number of forms by hand, recording service data, pest trapping data, service recommendations, and treatments performed. A Quality Assurance (QA) Supervisor would then generate reports for NIH on a monthly, quarterly and semi-annual basis. In order to generate the reports, the QA Supervisor would need to transfer the hand-written data into a report format manually, often needing to copy and aggregate the data several times.

This manual data entry, copying, and aggregation process resulted in a significant number of data errors due to difficulty reading technicians' handwriting and manual entry errors. Once a set of reports was complete, the Project Officer would then manually review the reports, provide comments, and send the comments back to the QA Supervisor. Finally, the reports would be printed out, sent to appropriate facility personnel, and stored in logbooks at each of the facilities. As the semi-annual report would regularly exceed 200 pages, this was a very labor-intensive and tedious process.

Further, each facility has a Plan and Service Schedule containing facility personnel and contact information, service times, safety guidelines, and a listing of specific pesticides allowed for use in that facility. These Plan and Service Schedules are living documents. Prior to working with 270net, every time there was a change, a Microsoft Word document needed to be edited manually and physically sent to all relevant personnel. Each report included a map detailing the facility structure and the placement of pest monitors.

### **Solution / Services**

#### Solution

- Designed and developed a secure web-based system to manage data entry, report creation and report distribution ; automating the entire pest management reporting process
  - ✓ Reports are dynamically generated on demand, ensuring accuracy and timeliness
  - ✓ Complete version control is maintained for all reports
  - ✓ Facility maps can be uploaded and monitors can be added and moved around on the image from the web-based system using a "drag and drop" method
  - ✓ Data is stored on a local database on the Tablet PC and transferred using wireless internet technology when an internet connection is available
  - ✓ The system monitors data changes on the Tablet PC and the main server and provides for two-way data synchronization via web services. For example, if a new map is added on the web-based system, the system will automatically download the map image to each Tablet PC when it next connects

- Integrated broadcast e-mail system to send reports to appropriate facility personnel
- Built a user-friendly, Tablet PC-based data entry system for field personnel
- Developed a field communications module to dramatically improve response time to emergency service requests
- Developed a survey module allows for receiving and analyzing user input on the pest management program

### Services

- Project management
- Systems analysis and technology consulting
- Software / internet application development
- Systems integration
- Application/server security and technical support
- Data collection, validation, transfer and synchronization
- Program support including training service technicians to properly use the hand-held data collection system
- Help desk

### Technology

- Industry standard software development tools in a Microsoft environment (ASP, ASP.NET, VB.NET, JavaScript, MS Access, SQL Server, Microsoft .NET Framework, Web Services)
- Wave 3.0 software for Section 508 accessibility standards compliance
- Verizon Wireless Broadband internet service

### **Outcome / Results**

- Significantly reduced data errors by eliminating need for same data to be entered more than once. Automated much of the data entry process via advanced user interface
- 80% reduction in contractor hours necessary to complete the analysis and reporting process
- Custom built system allows for easier modifications as conditions warrant
- Drastically reduced the consumption of paper, ink, envelopes, postage, and man-hours associated with report distribution by making the whole process electronic
- Data is posted in real-time instead of often being delayed by several weeks
- System is compliant with Section 508 Accessibility Standards