C48 Web-Based Data Acquisition, Analysis, and Presentation of an Environmental Investigation

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The goal of this presentation is to demonstrate the techniques used for data acquisition across multiparty/multi-facility projects. The tools used to analyze this data are discussed as well as the methods of presentation for a forensic environmental investigation.

This presentation will impact the forensic community and/or humanity by improving the number and types of tools available for the acquisition, analysis, and presentation of forensic environmental data.

Web-based technology has given us an opportunity to transform the way data is collected by providing a cost-effective method to improve corporate communications and to distribute and share vital information. The authors utilize the latest technologies in web-based applications to deliver remote database management for this projects. Scenarios are provided to many clients whether it is temporary data acquisition for a specific project or a corporate wide portal interface to manage continual data collection. Listed below are scenarios of remote data acquisition applications that have been utilized:

- **Multi-Contractor Sampling Plan:** A Web-based interface has been developed to acquire many related data points from several different contractors nationwide. Each contractor used their own mechanism of data collection but submitted the data on a common user-interface on a World Wide Web site. The data was stored on a local server and utilized to interpret the data.
- **Emergency Response Content Management Framework (CMF):** The Emergency Response Portal (ERP) provides a central location to store vital information during a crisis situation. Data is shared between the project managers and their clients as well as with other contractors and agencies via web-based applications.
- **Multi-Contractor Web-Based Equipment Management Console:** A custom application was developed for a client to manage a nation-wide network of responders and their air monitoring equipment. Most of the consumable supplies used in air monitoring have limited shelf lives. To address this critical issue an interface was developed that allows the user and the clients to know when critical inventory is about to expire. The clients also have the ability to view important details about each responder including monitoring equipment and capabilities, contact information, and training compliance.
- **Multi-Facility IH Air Quality Portal:** This application aids in collecting and reporting industrial hygiene data across a multi-facility corporation. The goal was to construct an application that was easily accessible to all facilities and corporate offices, but still remain highly secure from the public while maintaining production efficiency. Floor personnel enter data real-time to a remote database, which corporate users can access at any time. Email alerts were programmed to execute at certain action levels providing corporate safety officials with real-time updates from all of their plants simultaneously. Custom reports were generated based on corporate's needs and continue to change as needed.
- **Data Analysis and Interpretation:** Methods of data analysis depend on the mechanism of data collection and scope of the project. For short-term/temporary projects the data is typically imported into different software packages to statistically and visually interpret it. For more permanent applications, the analysis and reporting interface is built directly into the application itself. An enterprise database system is utilized to store the raw data collected. Graphs and statistics are generated on the fly as the data changes. Historical views of the data quickly show changing trends in the working environment. When dealing with more than just raw data, CMF is used to manage supporting documentation and files. All raw data, graphs, and documents are available to clients through an internet browser.

World Wide Web, Data Analysis, Data Presentation

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