

Visual Survey Data System (VSDS Ver. 3.5)



software
monitoring
exposure records
access control



Overview

The Visual Survey Data System (VSDS) automates the process of data capture, display and reporting (printing) of radiation and contamination survey information. VSDS is an easy-to-use, mouse-driven, Windows® graphical program where digital images (floor plan, system or component drawings or photographs) serve as the background over which the radiological survey data is recorded. Survey locations are identified on the drawings with unique click and edit graphical symbols which contain the radiological data (dose rate, cpm, etc.). All data is stored in relational database tables to enable easy reporting and trending. Viewing, entry, updating and approval of surveys can be performed from any location on the network.

Design Objectives

VSDS has been designed to meet the following objectives:

The primary objective is to provide a user interface which is intuitive, friendly and easy to use, requiring little computer skill or knowledge to operate. Additional objectives include:

- Provide built-in security to ensure that only authorized individuals can edit and approve surveys
- Lock surveys upon approval so that no changes can be made
- Provide a variety of survey formats to accommodate the special needs of the radiation protection organization
- Provide an interface to existing facility health physics records management systems
- Utilize industry-standard database connectivity to allow integration with the customer's existing database architecture
- Operate on the standard Windows operating system and on industry standard networks

Interface Design

VSDS is a Windows compliant graphical program which interacts via mouse or any supported Windows input device. VSDS provides several different survey formats to meet a variety of documentation requirements.

- Standard Map Survey: This is the primary survey interface. This interface provides all functions necessary to document radiological survey data on a graphic (floor plan map, elevation drawing or picture)
- Equipment / Material Release Survey: This option provides complete documentation for release of items from the radiologically controlled area
- One Liner Survey: This option provides for shorthand documentation of survey results where a graphic is not required
- Itemized Survey: This options provides for documentation of discrete items where a map is not required

Each survey interface contains context sensitive help to simplify data entry.

Maintenance of Images

Images (drawings or pictures) can be obtained or created with a wide variety of commercially available software. VSDS supports the importing of a number of common image storage formats such as pcx, wmf, tga, jpg, etc. If necessary, MJW can scan or draw images for you, or convert those you currently have to a format compatible with VSDS. The images used for VSDS are cataloged in a database to allow easy access during the use of the program. The user simply selects the desired image from a list. The database design allows for tracking of revisions to drawings as facilities are modified. This ensures that only current images are used when completing a survey and that historical data is preserved.

Survey Data Input

Input of data involves selecting data-point symbols from the toolbar and then clicking on the image to place them. VSDS interface then allows entry of the numeric data (dose rate, cpm, etc.) for the data points. Optional modules provide the ability to download data from popular recording survey meters (as described below). Password security is provided to ensure that data is input or modified by authorized personnel only.

A wide variety of features can be customized to match your current survey documentation system through the comprehensive configuration file included with the system. The left side of the screen displays the image (i.e., map or photo) of the survey area. Data within symbols that have been placed on the image can be edited easily by clicking on the desired symbol. When a data-point object is selected, the right side of the screen changes to reveal the details for the selected data point. Summary data for smears, wipes and air samples can be obtained by clicking on index-card like tabs labeled "Smears", "Wipes" and "A/S". As described above, the data contained on these panels can be customized to match your current survey documentation system. Full-color printable survey reports provide a complete listing of all data taken for the survey.

For routine surveys, bar coding can be implemented and surveys can be set up as "templates" with all the data-point objects placed in their typical locations. When the actual survey is ready to be documented, the technician simply copies the template to a new survey name and fills in the data. The technician can supplement the template data points as needed.

Link to GEDDS™ for Live Data Display

A very powerful feature of VSDS is the ability to link to MJW's Graphical Electronic Dosimetry Display System (GEDDS). GEDDS is a system designed for controlling and recording of data from electronic dosimeters. Electronic dosimeters can be set up as portable and inexpensive Area Radiation Monitors (ARMs). These ARMs and other devices such as Continuous Air Monitors (CAMs) can provide real-time data for display within VSDS. This function can be activated by selecting the Activate GEDDS Link menu item. VSDS then displays special icons in their proper location over the image and updates the data on a regular basis, typically once per minute. If the survey is saved while the GEDDS link is active, a "snapshot" is taken of each linked data point and stored with the survey. Weekly surveys could be performed simply by creating a new survey, activating the GEDDS Link and saving the survey.

Data Storage

For each survey entered, the overlay data on the image is stored in a relational database to allow for trending and analysis. This methodology results in minimum storage space requirements for recording survey results. VSDS communicates with the database using the Open Data Base Connectivity (ODBC) drivers. These drivers enable connection to all major database systems from over 150 different manufacturers, including Oracle®, Microsoft SQL Server, Sybase and Microsoft Access and many others. This allows VSDS to interface with your existing Health Physics records management database system, if desired.

Automated Data Collection

Survey data can be collected in the field using any recording survey instrument. These units have the capability to store survey data in on-board memory for later download to a personal computer. The data stored at each survey location varies with instrument manufacturer but typically includes current date and time, location code, instrument ID number, detector ID, calibration factors and other pertinent information. VSDS modules are available for several of these recording survey instruments, such as the ROTEM Ram-Ion and the Ludlum 2350, and Dosimeter Corporation Smart-Ion. The data from each instrument is automatically transferred into the survey by these modules.

Review and Approval

Review and approval of surveys by supervisors can be performed electronically. When the technicians are finished with the survey they can mark it as ready for review. At this stage, a comprehensive QA check is performed by the system and a list of non-conformance items are generated for the users. During the review process, the supervisor may identify deficiencies, and can mark the survey to be held for resolution. After the deficiencies have been corrected, the supervisor can sign off electronically. Once the sign-off is performed, the survey is then locked so that no further changes can be made.

Network Operation

VSDS was designed to operate in either a stand-alone or networked environment. The networked operation of VSDS provides this valuable tool to virtually any person on site. Administration and maintenance of the system is easily controlled since all images and the database are located and maintained on server(s). When operated in stand alone mode such as a pen tablet PC, data can be synchronized with the central database using the optional VSDS Briefcase module.

Operating Environment

VSDS is a 32-bit Windows application and will run under Windows 98, NT®, 2000 and XP.

VSDS Standard Features

The following features of VSDS make it the ideal solution to meet your radiological survey documentation and trending needs.

- Full function survey documentation using select-and-click data objects.
- Intelligent data objects which contain data, position information and notes about the survey point.
- Efficient storage of survey data in database tables allowing trending of data for any location on a survey image.
- Data file format compatible with commercially available spreadsheet software to allow easy import of data for trending and graphing.
- Data objects that are available for documenting the following types of survey data:
 - General Area Dose Rate
 - Beta Dose Rate
 - Contact Dose Rate
 - Smears
 - Wipes
 - Air Samples
- Survey Number
- Room or area name
- RWP number
- Surveyor's name
- Date and Time of the survey
- Indication of the type of survey (daily, weekly, monthly, job coverage, other)
- Indication of the detection of hot particles
- Fields for logging of survey instrument(s) used
- Fields for comments
- Color or black and white printing of comprehensive survey reports
- Image catalog database
- Drawing capability (lines, ellipses, rectangles, arrows, etc.)
- Addition of user-defined drawing symbol objects (drums, bags, etc.)
- Signature blocks at bottom of survey printouts
- Password protection and sign off for surveys
- Checkbox "Hold for Resolution" on supervisor's review
- Survey search capability (by location, date, RWP, surveyor, etc.)
- Auto-numbering of surveys
- Installation program
- Survey database setup program

