

# SafePlant™

SafePlant™ Plant Safety and Process Tool is a GIS-based, decision-support system that allows for wide-ranging data related to a facility and the surrounding region to be gathered, processed, and managed. The system is built around a relational, multi-user database architecture which uses maps and powerful querying algorithms to produce efficient, comprehensive results that can be visualized.

DBS has developed a sophisticated decision-support system that utilizes geographic information systems technology, operations research and statistical methods, and custom software. SafePlant™ uses the incredible power of a computer coupled with GIS, algorithms, and scheduling heuristics to provide a comprehensive medium to gather, update and harness information from a wide variety of plant operations. Primarily focusing on plant safety and a streamlined internal operation methodology, SafePlant™ serves as a dashboard application for all these operations while harnessing the information from these varied fields to integrate with plant safety, hazard mitigation and incident response.

## SafePlant™ HAS BEEN DESIGNED TO SUCCESSFULLY INTEGRATE:

**Plant Safety** (planning, execution, incident evaluation and review)

**Plant Incident Command** (recognition, planning, logistics, operation and administration)

**Plant Security** (zone surveillance, access, visitor tracking)

**Plant Process Tracking** (raw materials, finished products, storage, related MSDS and transportation logistics)

**Optimization of Asset Maintenance and Management Operations** (promote tag-less facilities, paper-less inventory of asset literature, asset history tracking, work order generation, SCADA integration and more)

**Applications to Integrate Leak Detection and Monitoring Stations** (in accordance with EPA Course 380 to promote proper FRM 21 protocol)

**Weather-based Community Impact** (identification, assessment and call-out notification)

**Real-time Web-based Interaction** (with local and state emergency operations entities for a better support structure during an incident)

**Available Mobile Communication Module** (to extend the desktop data to the field via handheld palm units)

Instantaneous access to key information is a vital and essential need during disaster mitigation and incident response. SafePlant™ provides an un-paralleled medium to achieve this most vital need, while simultaneously streamlining the daily records management of the entire plants operations. The **SafePlant™** integrated decision-support and management system merges plant network and regional GIS, impact variables, safety demands, and local EOC operations. The solution is displayed visually on a customized GIS map. The application satisfies decision-support and management objectives while minimizing total community, environment, and ecosystem impacts. User-selected portions of the plant network and surrounding region can be printed to hard-copy or can be transferred via the Web, for emergency purposes, to EOC's and other support agencies. Users can also prepare professional quality maps for documentation, field verification, field evaluation, field planning, and display purposes. A reference repository feature allows necessary access to stored documents such as blueprints, photographs, evacuation routes, footprints, and floor plans.

## Advantages To Using A GIS-Based Approach:

- \* The GIS-based approach facilitates a very accurate display of plant/unit assets and their respective attributes by using their respective latitude/longitude coordinates in real space, providing for very precise locations.
- \* Since the system is map-based, the level of network detail incorporated into the GIS is extremely high. All asset attributes are overt and can be used in scheduling, maintenance, and risk assessment calculations. By utilizing the database functionality inherent to this data format, the user can also specify complex impact variable attributes.
- \* GIS provides a visual environment for facility management and decision-making. This graphical presentation is a reflexive component of the implementation of any decision. All facets of the decision-making process take place in a visual and interactive environment, from preparing the wide-ranging input data to analyzing this data.
- \* This method of data presentation relates problem formation and solution in a powerful way. Visually displaying facility and regional wide-ranging data aids in user understanding and comprehension whereby daily activity planning, emergency planning scenarios and actual incidents can be handled more efficiently and effectively.
- \* Since this method of visual data presentation facilitates user understanding and comprehension, decision-making and management is ultimately enhanced. The visual environment provides a means of conveying highly technical information to both facility workers and non-practitioners in a very straightforward and understandable manner.

**Approach** involves an application of state-of-the-art clustering algorithms and innovative scheduling heuristics. A significant innovation involves generating accurate impact variable estimates in the safety design phase. A key component of this effort is the development of a customized decision-support and management system. For the user, the **SafePlant™** approach provides a graphical verification of data that is both intuitive and useful.

**Technology** The system utilizes advanced technology to provide cost saving automation for the safer operation of a facility as well as the most advanced functionality available on the Web for real-time data acquisition. The technology used includes 3D Virtual GIS, interactive terminals, communications, sophisticated user interfaces, robust multi-user databases, and networking. The Security Module component can provide a visual snapshot of a designated portion of a facility at desired intervals and even e-mail these to networked facilities. **SafePlant™** automates and coordinates asset inspection data, work order generation, alpha messaging, tagless component tracking, integrated labeling/OPC tools, leak detection/recovery, and asset case history, in both a networked and non-networked system.

## Key Benefits and Features:

- \* Multiple vendor support
- \* Unlimited number of users and access
- \* Helps conform with OSHA regulations
- \* Ability to generate customizable reports and services
- \* Full, personal, 24/7 technical support available
- \* Data exportable to various industry standard formats
- \* Rapid access to MSDS' with hard copy capabilities
- \* A fully GIS-based system with 3D viewing capabilities
- \* Promotes FRM 21 Protocol of the EPA Course 380
- \* Ability to assess Homeland Security risks and relative impacts
- \* Loads data updates directly to other networked facilities
- \* Presents gauge readings every 24 hours and e-mails to client
- \* Full integration with CAMEO and Aloha air dispersion models
- \* Secure website viewing capability with internet deployable modules
- \* Ability to monitor air-quality sensors for "permissible" limit infractions
- \* Complete QA/QC calibration data by asset maintained in the database
- \* Label generation
- \* Equipment efficiency
- \* Visitor information capture
- \* Incident Command System (E-ICS)
- \* Plume and footprint forecasting
- \* Attendance and employee rosters
- \* Evacuation routes (plans and execution)
- \* ISO or relevant certification integration
- \* Vehicular movement with cargo (entry/exit)
- \* Integration of disaster management plans
- \* Equipment/component replacement inventory
- \* Reminders via E-mail for scheduled maintenance
- \* Piping and instrumentation diagrams (P & ID)
- \* Containment areas and fire fighting apparatus
- \* Critical equipment/facility identification
- \* Available turnkey installation
- \* Very low, fixed, predictable costs
- \* Tier-level security feature allows restricted access
- \* Alarm notification via e-mail, pagers, fax, or voice

Plant safety bears a direct relationship with most plant facility activities such as security, feedstock, storage, processes, consumables, finished products, fugitive emissions, equipment maintenance, equipment operation, visitors/contract workers in plant at any given time and so on. Incorporating trending and risk-based inspection processes and enabling operators to manage assets throughout the life span of the asset from as-built baseline surveys to decommissioning is all part of the **SafePlant™** system. It also provides the tools to manage and document case history (Design Documents, Operating Procedures, Maintenance Schedules, LDAR, SCADA, Pertinent OSHA Guidelines/Requirements, Integrated Security Cams and more).

**Ultimate Goal** of the system is to reduce impacts on the community, environment, and ecosystem while significantly improving manual efforts required in the over-all management of a facility, its assets and the surrounding region. In this age of cutting costs and increased productivity, there is an increased need to reduce or even eliminate lost time and minor accidents.

Regardless of your location or your production complexity, **DBS** has the technical expertise to assist you in both the automation and safety management of your facility. Our strength lies in our ability to address complex problems and to provide a management system that utilizes simple, easy-to-use reports and controls using only an internet browser and our secure servers. Production engineers can have ready access to information to guide them to production opportunities while field personnel can know which areas need attention before leaving for the field in the morning. With **SafePlant™ Plant Safety and Process Tool** you can be in control of your facility from anywhere in the world, at any time you like. Take your facility to the next level with GIS and **SafePlant™**.

Other DBSysgraph products that integrate and compliment **SafePlant™** functionality are:

- MessageTrak™** (Alarm and Events Notification Tool)
- PortVantage™** (Port and Harbor Facilities Management Solution)
- E-Alert™** (Homeland Security and Interoperability Solution)
- OrderTrak™** (Work Order Management Tool)
- E-Plan™** (Damage Assessment Module)